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Health and Welfare  
Canada

Santé et Bien-être social  
Canada

# Accidents, Poisoning and Violence in Canada



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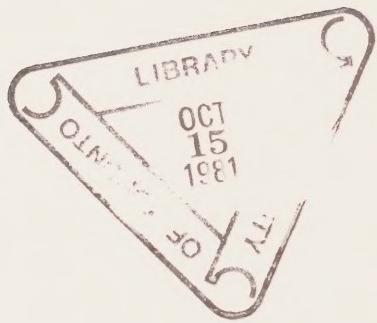
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ACCIDENTS, POISONING AND VIOLENCE IN CANADA  
AN OVERVIEW

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## PREFACE

The main purpose of this document is to draw attention to certain important features of accidents, poisoning and violence in Canada by highlighting a variety of statistics. Statistics have been synthesized, using a variety of source documents primarily in various publications of Statistics Canada, Department of National Health and Welfare, Canada Safety Council, etc. The document is not intended to provide a detailed analysis of the data, but rather to provide a broad overview of this important problem.

The concise presentation of data, charts and graphs in one source document will constitute an important step to aid public health workers, planners and policy makers become better aware of the extent of the problem and to implement control measures.

The contribution of a large number of employees in a variety of government departments and voluntary agencies, including the Department of National Health and Welfare, Statistics Canada, Department of Labour, Canada Safety Council and the Dominion Fire Commissioner is gratefully acknowledged.

A.J. Clayton, M.D.,  
Director General,  
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## 1. SUMMARY



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## 1. SUMMARY

Accidents, poisoning and violence as a group are the third leading cause of death in Canada (16 000 deaths in 1977) and their relative importance is increasing as other causes of mortality decline at a faster rate. Because most of these conditions occur early in life (and in a higher proportion in Canada than in other countries) they constitute the most common cause of hospital utilization and death among young people (1-34 yrs.). As a group they exceed any other cause of "potential years of life lost". Their economic impact has not yet been fully established, but direct costs may exceed two billion dollars annually. Data to estimate indirect costs (attributable to productivity lost due to disease, disability or premature death) is not readily available.

Motor vehicle accidents, suicide and accidental falls are the most important in terms of magnitude and together caused almost 2/3 of A.P.&V.'s deaths in 1977 (64.8%). Drowning, fires, homicide and poisoning were responsible for another fifth (19.6%). Unfortunately, national statistics regarding morbidity and disability (incidence and/or prevalence) is seldom available for the whole of Canada.

Mortality data indicate that these conditions are all quite unique, and some of their epidemiological features indicate that:

- The trends of deaths attributable to MVTA and drowning showed a moderate decline between 1966 and 1977 (-17% on the average for both sexes); accidental falls, fires and poisoning deaths have been practically stationary (-4.5% on the average) with the single exception of female falls. In the same period suicide and homicide mortality rates have increased by 34% and 62% respectively.
- In terms of their distribution (by time, place and person) the outstanding features of motor vehicle accidents (and to a lesser extent drowning fatalities) are their occurrence usually outdoors, between May and August, mostly in rural areas and at higher rates in the Atlantic and Western provinces. They affect predominantly young males under age 34 (sex ratio 2.6 to 1).
- Home accident deaths (which include accidental falls, fire and poisoning) do not show a marked seasonal predominance, although they tend to occur more frequently in the winter months in homes and residences in almost 80% of the cases. The age groups affected are older (60% over age 30 yrs. for fire and poisoning and 86% over age 50 yrs. for falls) and although there is a male predominance it is not as marked (sex ratio 1.6 to 1). The geographic distribution shows a greater incidence in some Atlantic and Western provinces. Little information is available to explain their peculiar distribution or the risk factors involved in their genesis.

- Suicide and homicide affect predominantly young and middle age males (15-49), but they differ from the first group (MVTA) group, not only because of their place of occurrence and slightly different seasonal distribution (spring), but also because they are increasing in all age groups (particularly males 15-34) in all provinces. The causes of this widespread increase are not yet understood.

In spite of its inherent limitations, more information is available for motor vehicle traffic accidents than for any other item. This data suggests that:

- Canadians were buying more trucks, buses and motorcycles in proportion to automobiles and were driving fewer kilometers per vehicle annually in 1977 than in 1973. (Presumably the average number of passengers per vehicle has increased, while the average size, weight and mean driving speed of motor vehicles may have decreased).
- Accidents causing property damage (over \$200) and traffic violations continue to increase at least by 45%, while the number of persons killed (-23%), especially passengers and pedestrians and injured (-11%), particularly drivers, has decreased since 1973. Factors such as a decreased utilization of motor vehicles, lowering of speed limits, mandatory use of seat belts, etc. may claim to be responsible for such a decline. However, conclusive evidence to determine exactly the cause(s) of this decline is not yet available.
- Most MVTA occur in the summer months, on weekends and between 3 and 6 pm. However, the fatal ones are more likely to occur on rural roads, especially in the Atlantic and some Western provinces, presumably where the victims drive longer distances at higher speed on low traffic density roads. The non-fatal accidents occurred more frequently on urban streets in Ontario, Manitoba and B.C.
- Young males (15-34) of lower socio-economic groups are most frequently involved in MVTA (either as drivers or passengers).

Among the risk factors documented so far, those related to human behavior such as risk-taking attitudes or consumption of alcohol, seem to have a greater influence than environmental factors related to the condition of the vehicle, road or weather.

2. INTRODUCTION

3. DEFINITION AND SCOPE



## 2. INTRODUCTION

The gradual decline of infectious, cardiovascular and other diseases, with the subsequent prolongation of life expectancy has enhanced the importance of accidents, poisoning and violence (A.P.&V.) as a cause of death, morbidity, disability and economic loss in Canada.

The purpose of this report is to provide an overview of the problem, utilizing information from a variety of sources on this subject. Attempts have been made to secure the most recently published data, but it is recognized that much of the available data is several years old. However, this will not detract from the value of the publication as a source of information otherwise not readily available.

Since data on morbidity, disability and other aspects is seldom available, and not always entirely comparable for the whole of Canada, most of the information presented here deals with mortality. Despite these limitations this document will serve as a point of reference to provide:

- a rough estimate of the magnitude and impact of A.P.&V. in Canadian society;
- an overview of the trends for selected diagnostic categories;
- the identification of the most important types of accidents, poisoning and violence, the population groups most affected and, when possible, the risk factors associated with their occurrence.

It is hoped that this purely descriptive presentation may contribute by promoting discussion in respect to the reasons for past trends and drawing attention to the tasks that lie ahead. Among these, the most important are:

- the development and testing of hypotheses aimed at elucidating causation;
- the subsequent development of effective control and preventive measures; and
- surveillance and evaluation of the effect of these measures.

## 3. DEFINITIONS AND SCOPE

A heterogeneous variety of conditions are grouped under the diagnostic categories of accidents, poisoning and violence.

These differ in terms of their morbid expressions, causes and consequences and have been regarded as a single group for didactic purposes only. Because the statistics are collected by a variety of agencies and there is a lack of agreement regarding definitions and classifications, the comparability of data may be open to question and any subsequent interpretation may be difficult.

Accidents have been defined in a variety of ways. An exhaustive review of the definitions proposed by national and international agencies is beyond the scope of this presentation. For practical purposes, the data have been presented according to the diagnostic categories of the 7th and 8th revision of the International Classification of Diseases (adapted for use in the United States). The items considered (800 to 999) were selected from those of Chapter XVII of the Supplementary Classification of External Causes of Injury and Poisoning. The data source is listed under each table, graph or chart.

Mortality rates have been standardized by the direct method, using as a Standard the 1971 Canadian Population.

Maps were obtained from the Mortality Atlas of Canada, a joint Publication of Health and Welfare and Statistics Canada.

4. MAGNITUDE



#### 4. MAGNITUDE

The magnitude of the problem posed by accidents, poisoning, and violence can be expressed in terms of mortality, morbidity, economic impact and other ripple effects.

##### Mortality

###### 4.1

###### DEATHS - CANADA 1977

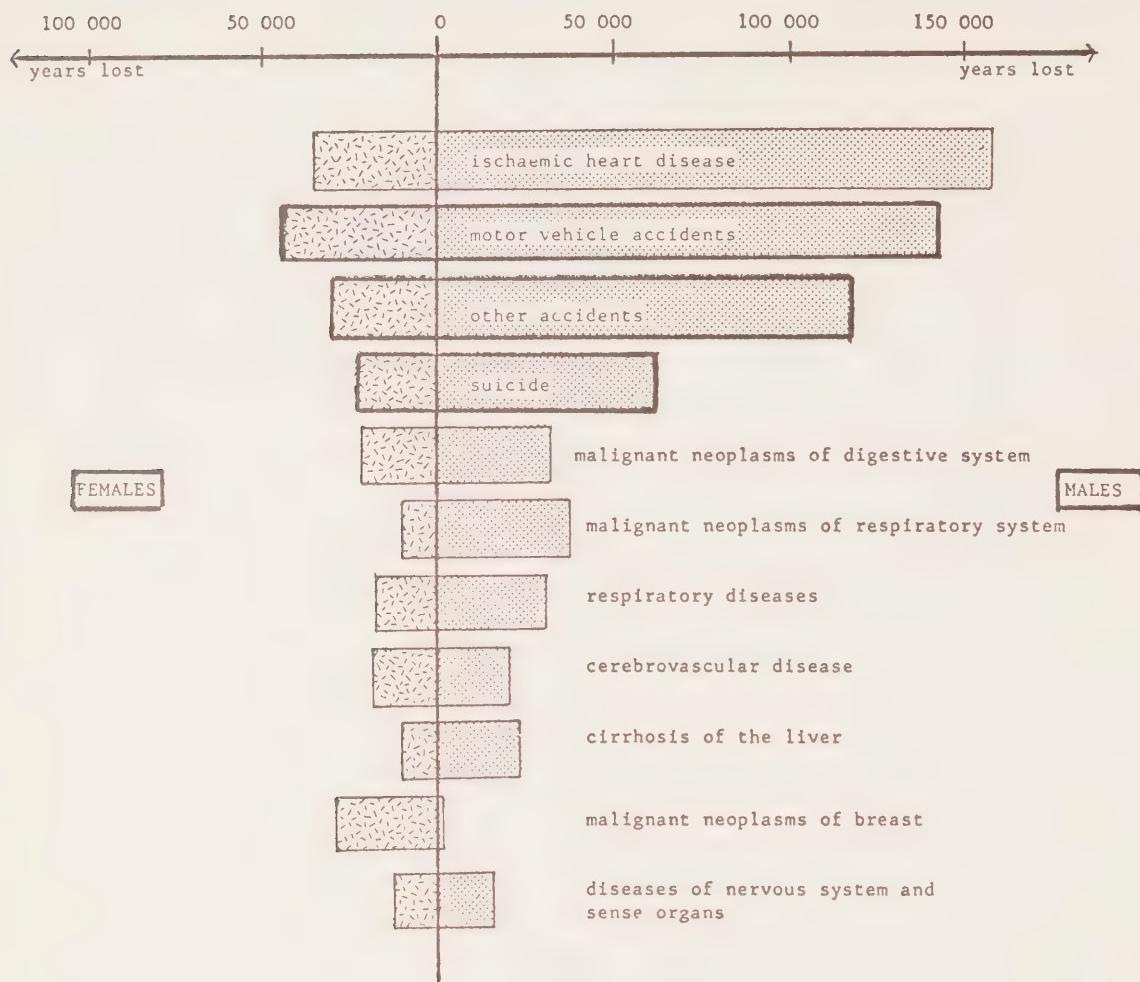
	DIAGNOSIS	ICD-8	NUMBER	%
I	Infective and parasitic	0-136	1 021	0.61
II	Neoplasms	140-239	36 419	21.74
III	Endocrine, nutritional and metabolic	240-279	3 719	2.22
IV	Blood and blood forming organs	280-289	547	0.33
V	Mental disorders	290-315	1 145	0.68
VI	Diseases of nervous system	320-389	1 809	1.08
VII	Diseases of the circulatory system	390-458	81 474	48.65
VIII	Diseases of the respiratory system	460-519	10 833	6.47
IX	Diseases of the digestive system	520-577	6 130	3.66
X	Diseases of the genito-urinary system	580-629	1 976	1.18
XI	Complications of pregnancy, childbirth and puerperium	630-678	18	0.01
XII	Diseases of the skin and subcutaneous tissue	680-709	123	0.07
XIII	Diseases of the musculo-skeletal system	710-738	541	0.32
XIV	Congenital anomalies	740-759	1 585	0.95
XV	Certain causes of perinatal mortality	760-779	1 956	1.17
XVI	Symptoms and ill-defined conditions	780-796	2 201	1.31
XVII	ACCIDENTS, POISONINGS AND VIOLENCE	800-999	16 001	9.55
ALL CAUSES		0-999	167 498	100.00

Source: Statistics Canada Catalogue 84-203 Annual-1977

- 4.1 Accidents, poisoning and violence (A.P.&V.) constitute Canada's third leading cause of death. In 1977, almost 10% of all deaths (16 001) were attributed to these causes.

4.2

POTENTIAL YEARS OF LIFE LOST BETWEEN AGES 1 AND 70 (PYLL)  
BY MAJOR CAUSES, BY SEX, CANADA 1976



Source: Health and Welfare Canada  
Health Field Indicators  
1979

- 4.2 Considered together, motor vehicle accidents, other accidents and suicide exceed any other causes of potential years of life lost. This is because the vast majority of deaths attributed to A.P.&V. occur early in life.

4.3

DEATHS ATTRIBUTED TO SELECTED ACCIDENTS, POISONING  
AND VIOLENCE (I.C.D. 800-999)  
CANADA - 1977

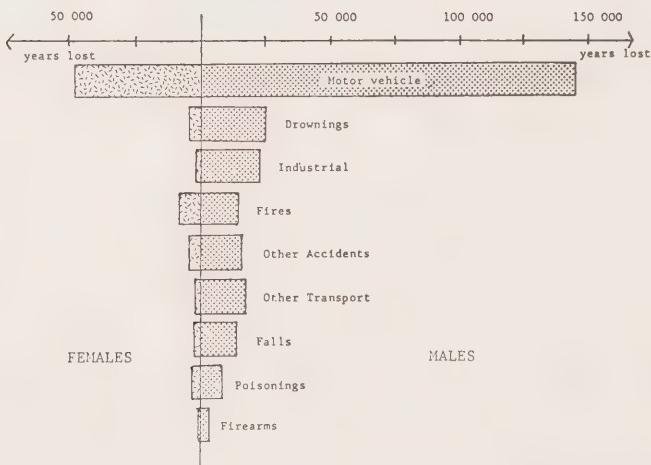
CAUSE	CODE	MALE		FEMALE		TOTAL	
		No.	%	No.	%	No.	%
Motor Vehicle Traffic & Non-Traffic Accidents	810-823	3 831	33.8	1 424	30.7	5 255	32.8
Accidental Poisonings by Drugs, Gases, Vapor & Other Substances	850-877	371	3.3	216	4.6	587	3.7
Accidental Falls	880-887	984	8.6	829	17.9	1 813	11.3
Accidents Caused by Fires and Flames	890-899	438	3.8	248	5.3	686	4.3
Drowning	910	1 006	8.8	236	5.1	1 242	7.8
Suicide and Self Inflicted Injury	950-959	2 459	21.6	858	18.5	3 317	20.7
Homicide	960-969	399	3.5	198	4.3	597	3.8
Remainder	-	1 878	16.6	626	13.6	2 504	15.6
TOTAL	800-999	11 366	100.0	4 635	100.0	16 001	100.0

SOURCE: Statistics Canada Catalogue 84-203, 1977.

- 4.3 Among A.P.&V. approximately two-thirds of all deaths were due to motor vehicle accidents, accidental falls and suicide. While among most categories there is a male predominance, in deaths caused by fires and flames, and particularly in those caused by falls, females are proportionally more affected. Their distribution by ages is presented in Section 5.

4.4

DISTRIBUTION OF POTENTIAL YEARS OF LIFE LOST BETWEEN  
AGES 1 AND 70 BY TYPE OF ACCIDENT, BY SEX,  
CANADA, 1976



SOURCE: Health and Welfare Canada  
Health Field Indicators  
1979

- 4.4 Motor vehicle accidents contribute more than any other accidental cause of death to potential years of life lost. (Industrial deaths were defined in terms of their place of occurrence.)

4.5 PERCENTAGE OF ACCIDENTS (AE 138-AE 146) TO ALL CAUSES OF DEATH, ACCORDING TO RANK,  
DEATHS FROM ACCIDENTS AND ALL CAUSES PER 100 000 CHILDREN AGED 1-14; 1971  
POURCENTAGES, CLASSES PAR ORDRE CROISSANT, DES ACCIDENTS MORTELS (AE 138-AE 146)  
PAR RAPPORT À TOUTES LES CAUSES DE DÉCES; TAUX D'ACCIDENTS MORTELS ET TAUX DE  
MORTALITÉ GÉNÉRALE POUR 100 000 ENFANTS ÂGÉS DE 1 À 14 ANS; 1971

2. A. Boys — Garçons

Country or area Pays ou zone	Percent Pour- centage	Death rate Taux de décès		Country or area Pays ou zone	Percent Pour- centage	Death rate Taux de décès	
		Accident Accidents	All causes Toutes les causes			Accident Accidents	All causes Toutes les causes
1. Philippines . . . . .	2.6	9.8	381.0	29. German Dem. Rep. . . . .	38.6	22.6	58.4
2. Mexico — Mexique . . . . .	4.3	15.8	368.5	30. Poland — Pologne . . . . .	38.6	26.3	68.3
3. Dominican Rep. . . . . République Dominicaine	5.2	13.5	260.0	31. Ireland — Irlande . . . . .	41.5	24.2	58.4
4. Paraguay . . . . .	5.5	13.3	242.9	32. Czechoslovakia . . . . .	41.7	28.0	67.3
5. Panama . . . . .	5.8	19.3	332.9	33. France . . . . .	42.0	24.2	57.7
6. Peru — Pérou . . . . .	6.1	31.1	511.7	34. Belgium — Belgique . . . . .	42.4	27.3	64.3
7. El Salvador . . . . .	6.3	23.6	377.6	35. U.K.: N. Ireland . . . . .	42.4	23.9	56.3
8. Egypt — Egypte . . . . .	6.9	49.8	719.8	36. New Zealand . . . . .	43.3	27.3	63.1
9. Thailand — Thaïlande . . . . .	7.7	22.0	286.2	37. Nouvelle-Zélande . . . . .	45.4	31.4	69.2
10. Colombia — Colombie . . . . .	9.3	34.7	374.4	38. Germany, Fed. Rep. of . . . . .	45.8	30.1	65.7
11. Costa Rica . . . . .	11.9	19.0	159.9	39. Australia — Australie . . . . .	46.9	28.1	59.9
12. Mauritius — Maurice . . . . .	12.2	21.5	176.6	40. Austria — Autriche . . . . .	47.4	31.5	66.6
13. Chile — Chili . . . . .	12.8	22.4	174.5	41. Scotland — Ecosse . . . . .	47.4	27.0	56.9
14. Venezuela . . . . .	15.0	33.6	224.6	42. United States . . . . .	47.4	29.1	61.4
15. Argentina — Argentine . . . . .	20.8	30.1	144.6	43. Etats-Unis . . . . .	47.4	29.1	61.4
16. Spain — Espagne . . . . .	25.2	16.5	65.4	44. Switzerland — Suisse . . . . .	48.7	33.3	68.4
17. Portugal . . . . .	25.8	40.5	157.1	45. Netherlands — Pays-Bas . . . . .	50.8	31.0	60.9
18. Uruguay . . . . .	28.2	21.5	76.2	46. Denmark — Danemark . . . . .	50.9	30.4	59.8
19. Cuba . . . . .	28.7	19.8	68.9	47. Luxembourg . . . . .	53.6	41.6	75.7
20. Greece — Grèce . . . . .	29.0	16.8	58.0	48. Italy — Italie . . . . .	54.1	34.6	64.0
21. Singapore — Singapour . . . . .	32.9	21.0	63.9	49. Norway — Norvège . . . . .	54.3	32.8	60.4
22. Hungary — Hongrie . . . . .	33.5	21.8	65.0	50. Canada . . . . .	54.8	34.0	62.0
23. Italy — Italie . . . . .	35.5	22.7	63.9	50. Iceland — Islande . . . . .	68.2	48.4	71.0
24. Bulgaria — Bulgarie . . . . .	36.0	27.5	76.3				
25. Sweden — Suède . . . . .	37.0	15.1	40.8				
26. Puerto Rico — Porto Rico . . . . .	37.5	22.1	58.9				
27. Hong Kong — Hong-kong . . . . .	38.2	22.7	59.5				
28. U.K.: England & Wales . . . . .	38.4	19.6	51.0				
R.U.: Angleterre & Galles							

2. B. Girls — Filles

Country or area Pays ou zone	Percent Pour- centage	Death rate Taux de décès		Country or area Pays ou zone	Percent Pour- centage	Death rate Taux de décès	
		Accident Accidents	All causes Toutes les causes			Accident Accidents	All causes Toutes les causes
1. Philippines . . . . .	1.7	5.6	333.8	27. Ireland — Irlande . . . . .	26.6	9.7	36.3
2. Mexico — Mexique . . . . .	3.0	10.8	360.6	28. Bulgaria — Bulgarie . . . . .	27.0	16.1	59.6
3. E. Salvador . . . . .	3.2	11.9	377.4	29. Poland — Pologne . . . . .	27.6	13.0	47.2
4. Egypt — Egypte . . . . .	3.5	31.8	905.6	30. Scotland — Ecosse . . . . .	30.7	11.5	37.5
5. Panama . . . . .	3.8	11.5	305.4	31. Germany, Dem. Rep. . . . .	30.8	12.7	41.4
6. Peru — Pérou . . . . .	3.9	20.0	508.8	32. Sweden — Suède . . . . .	30.9	8.9	28.7
7. Paraguay . . . . .	4.0	8.5	213.9	33. Czechoslovakia . . . . .	31.8	14.0	44.0
8. Dominican Rep. . . . . République Dominicaine	4.2	9.8	232.3	34. Tchécoslovaquie . . . . .	32.1	14.0	43.6
9. Colombia — Colombie . . . . .	5.4	19.4	362.6	35. Hong Kong — Hong-kong . . . . .	33.6	15.9	47.3
10. Thailand — Thaïlande . . . . .	5.4	13.9	257.0	36. Japan — Japon . . . . .	33.7	14.1	41.9
11. Mauritius — Maurice . . . . .	6.4	12.3	193.5	37. France . . . . .	34.6	14.9	43.1
12. Venezuela . . . . .	8.2	17.7	214.8	38. Norway — Norvège . . . . .	35.2	13.0	36.8
13. Chile — Chili . . . . .	8.7	13.0	149.5	39. Germany, Fed. Rep. of . . . . .	35.8	17.6	49.1
14. Costa Rica . . . . .	8.9	13.7	153.9	40. United States . . . . .	36.1	16.0	44.3
15. Argentina — Argentine . . . . .	12.1	14.9	123.1	41. Austria — Autriche . . . . .	36.7	16.7	45.6
16. Singapore — Singapour . . . . .	13.2	7.7	58.2	42. Netherlands — Pays-Bas . . . . .	36.7	14.8	40.2
17. Spain — Espagne . . . . .	16.5	8.1	49.2	43. New Zealand . . . . .	37.0	15.7	42.4
18. Portugal . . . . .	16.8	21.0	124.9	44. Nouvelle-Zélande . . . . .			
19. Greece — Grèce . . . . .	17.6	7.6	43.4	45. Belgium — Belgique . . . . .	37.5	16.5	43.9
20. Cuba . . . . .	18.2	10.4	57.1	46. Switzerland — Suisse . . . . .	37.8	17.9	47.3
21. Uruguay . . . . .	21.3	11.3	53.1	47. Iceland — Islande . . . . .	40.0	13.3	33.3
22. Italy — Italie . . . . .	22.4	10.3	46.0	48. Denmark — Danemark . . . . .	40.5	15.0	37.1
23. Hungary — Hongrie . . . . .	22.9	10.0	43.5	49. Luxembourg . . . . .	42.1	23.5	55.9
24. Puerto Rico — Porto Rico . . . . .	24.0	9.6	41.1	50. Finland — Finlande . . . . .	42.5	17.6	41.5
25. U.K.: England & Wales . . . . .	25.2	9.4	37.3	50. Canada . . . . .	43.6	19.3	44.3
R.U.: Angleterre & Galles							
26. U.K.: N. Ireland . . . . .	26.0	9.6	37.0				
R.U.: Irlande du Nord							

SOURCE: World Health Statistics Report Vol. 30:1, 1971

- 4.5 The ranking of "accidents" in relation to "all causes of death" in 50 countries selected by a W.H.O. study revealed that: for the 1-14 age group, Canada had in 1971 the highest and second highest percentage of accidental deaths among females and males respectively. In proportion to all causes of death, accidental deaths in children are more important in Canada than in any of these 50 countries.

Morbidity

4.6

HOSPITAL PATIENT-DAYS BY AGE AND SEX  
"ACCIDENTS, POISONING, VIOLENCE" AND "ALL CAUSES"  
CANADA - 1976

	ACCIDENTS (171-185)* POISONING AND VIOLENCE				ALL CAUSES (1-188)*			
	MALE		FEMALE		MALE		FEMALE	
	No.	%	No.	%	No.	%	No.	%
Less 1 year	12 758	0.7	10 109	0.6	511 081	2.9	371 811	1.7
1-14	228 134	12.3	124 073	7.1	1 411 087	8.1	1 072 137	4.8
15-24	409 940	22.2	153 481	8.8	1 192 305	6.9	2 298 836	10.3
25-44	402 305	21.9	210 263	12.0	2 274 836	13.0	4 481 806	20.2
45-	789 669	42.9	1 246 907	71.5	12 011 066	69.1	13 994 335	63.0
All ages	1 842 806	100.0	1 744 833	100.0	17 400 375	100.0	22 218 925	100.0

Both sexes 3 587 639 (9.05%)

36 619 300 (100.0%)

\*Canadian Diagnostic List

SOURCE: Statistic Canada  
Hospital Morbidity  
Cat. 82-206

- 4.6 Direct information on morbidity or disability caused by accidents is not readily available for the whole of Canada. Nonetheless, indirect evidence, based on the utilization of Hospital Services indicates that approximately 1/10 (9.05%) of all patient-days utilized in 1976 were devoted to A.P.&V.

% HOSPITAL PATIENT-DAYS BY AGE AND SEX

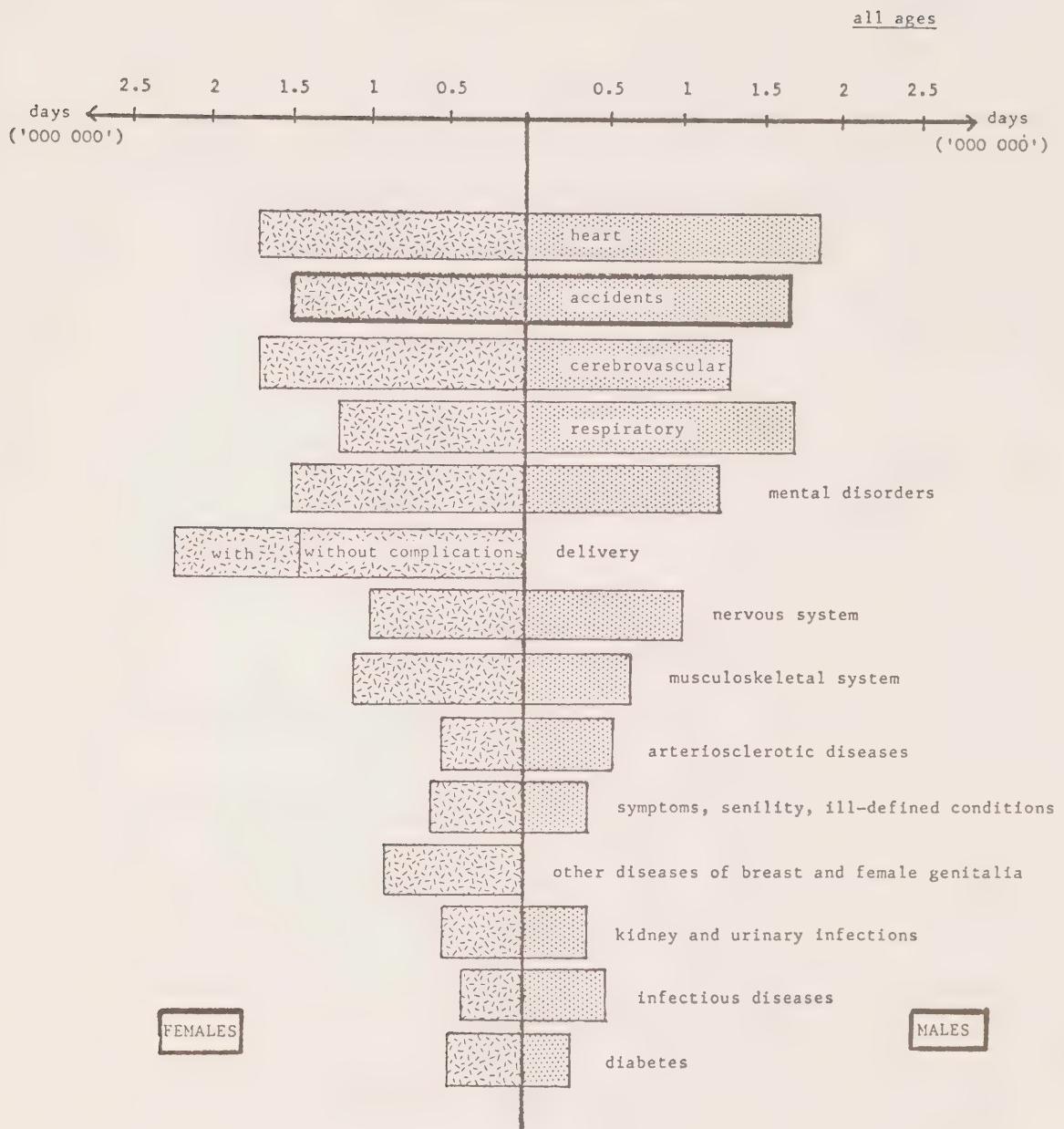
ALL CAUSES AND ACCIDENTS, POISONING AND VIOLENCE  
CANADA - 1976



- 4.7 Most hospital services for A.P.&V. were utilized by young males (under 45) and also by females later in life. The "excess" utilization by young males and older females is shown in Figure 3.7.

#### 4.8 HOSPITALIZATION

PATIENT-DAYS BY MAJOR CAUSES,  
GENERAL AND ALLIED SPECIAL HOSPITALS,  
BY SEX, CANADA, 1975



SOURCE: Health and Welfare Canada  
Health Field Indicators  
1979

- 4.8 In Canada, in 1975 accidents constituted the second most important cause of hospital utilization.

Costs

4.9

LOSSES AND DEATHS ATTRIBUTED TO FIRE  
CANADA 1968-1977

PROVINCIAL LOSSES AND FIRE DEATHS

Year	Number of Fires	Loss \$	Per Capita \$	Fire Deaths	Fire Death Rate <sup>(1)</sup>
1968	64 657	166 703 354	8.04	654	3.2
1969	64 914	197 102 448	9.35	620	2.94
1970	67 719	204 194 431	9.55	636	2.97
1971	72 729	236 077 454	10.89	739	3.41
1972	78 895	254 266 623	11.65	830	3.81
1973	74 479	338 219 141	15.31	725	3.28
1974	73 764	428 779 153	19.10	920	4.10
1975	69 881	463 814 403	20.07	822	3.55
1976	69 651	503 894 438	21.63	856	3.67
1977	74 043	571 664 756	24.49	811	3.47
Total	710 732	3 364 716 201	15.01 <sup>(2)</sup>	7 613	3.44 <sup>(2)</sup>

(1) Fire death rate is the number of fire deaths per 100 000 population per annum.

(2) 10-year average.

FEDERAL LOSSES

Year	Federal Government	
	Number of Fires	Loss \$
1968	1 372	2 203 703
1969	1 401	2 366 061
1970	1 355	3 757 054
1971	1 197	4 998 698
1972	1 103	4 732 024
1973	1 074	3 852 862
1974	930	4 995 506
1975	865	3 951 417
1976	973	15 148 323
1977	780	6 918 161
Total	10 950	52 923 809

Source: Report of the Dominion Fire Commissioner  
1977

- 4.9 Comprehensive statistics on the full economic impact of A.P.&V. do not exist in Canada. Nevertheless, partial and fragmentary estimates indicate that: during the past several years losses due to fire alone exceeded half a billion dollars annually. These costs have increased more than three-fold during the 10-year period 1968-1977.

4.10

WORK INJURIES AND COST IN CANADA  
1977

INJURIES				COSTS (IN CURRENT DOLLARS)			
Non Disabling Injuries	Disabling Injuries	Total	Rate per 100 Workers	Medical Aid Cost(1)	Compensation Per Lost Earnings	Pension (2)	Total Payments
559 900	476 997	1 036 897	10.57	195 585 000	452 303 000	226 478 000	874 366 000

(1) Includes hospitalization, rehabilitation services, funeral and related expenses.

(2) Capitalized value for payment, partial or total disabilities not including funds in service.

SOURCE: Occupational Safety and Health Branch  
Department of Labour Canada, 1978

4.10 Work injuries generated payments exceeding 874 million dollars in 1977 (either in terms of medical aid, pensions or compensation for lost earnings). Excluding medical aid costs, these payments amounted to 678 million dollars.

4.11

PARTIAL\* VIEW OF THE ECONOMIC IMPACT OF  
ACCIDENTS, POISONING AND VIOLENCE

- Federal and Provincial losses attributed to fire Canada 1977 (Table 4.9).	\$578 582 917
- Work injuries and costs (Excluding medical aid cost) Canada 1977 (Table 4.10).	\$678 781 000
- Motor vehicle accidents causing material damage over \$200 Canada 1977 (Table 8.2).	\$121 079 800
- Hospital patient-days caused by accidents, poisoning and violence Canada 1976 (Table 4.7).	\$358 763 900 **

Total \$1 737 207 617

\* Excludes major cost items such as: ambulatory care, productivity losses due to disability and premature death

\*\* Estimated figures

4.11 In addition to fire losses and the cost of work injuries, those motor vehicle accidents resulting only in material damage over \$200.00 (fatal and non-fatal accidents excluded) generated losses of at least 121 million dollars in 1977. The cost of hospital patient-day devoted to A.P.&V. amounted to no less than 358 million dollars in 1976. Therefore, if other cost items are considered such as ambulatory care and productivity losses due to disability and premature death, the annual cost of A.P.&V. may easily exceed 2 billion dollars annually.



## 5. TRENDS



5. TRENDS

5.1

AGE-STANDARDIZED MORTALITY RATES BY SEX  
FOR "ALL CAUSES OF DEATH" AND "ACCIDENTS, POISONING AND VIOLENCES"  
(ALL AGE GROUPS)  
CANADA 1950-1977

YEAR OF DEATH	M A L E		F E M A L E	
	ALL CAUSES OF DEATH (11-999)	ACCIDENTS, POISONING & VIOLENCE (800-999)	ALL CAUSES OF DEATHS (11-999)	ACCIDENTS, POISONING & VIOLENCE (800-999)
1950	1077.3	93.7	835.7	37.2
1951	1079.2	98.2	831.0	36.9
1952	1066.5	102.1	787.2	36.2
1953	1052.0	99.6	780.4	37.6
1954	1008.7	94.4	736.1	35.9
1955	1019.0	96.9	729.5	36.0
1956	1018.5	98.4	733.6	38.3
1957	1037.2	100.6	728.1	36.7
1958	1005.6	94.3	701.1	33.8
1959	1013.5	94.4	709.5	33.8
1960	996.2	92.6	682.2	34.6
1961	982.1	93.8	663.6	33.1
1962	977.2	94.3	662.0	35.4
1963	963.0	94.5	659.5	35.6
1964	965.7	96.7	627.5	35.6
1965	972.4	98.0	629.0	38.1
1966	967.4	101.5	612.6	36.7
1967	955.9	99.3	595.6	39.0
1968	955.3	08.2	593.8	38.4
1969	946.1	102.3	581.4	38.2
1970	940.3	97.7	567.9	38.9
1971	928.2	101.8	554.5	40.7
1972	952.8	107.5	556.6	41.6
1973	948.0	108.6	546.1	41.8
1974	941.5	106.3	542.8	41.3
1975	930.6	100.7	526.8	40.0
1976	898.1	92.6	817.9	35.0
1977	880.6	95.0	514.1	36.5
MEAN 1950- 1952	1074.3	97.3	817.9	36.7
MEAN 1975- 1977	903.1	96.1	514.1	37.4
% CHANGE	-15.9	-1.26	-37.14	+ 0.73

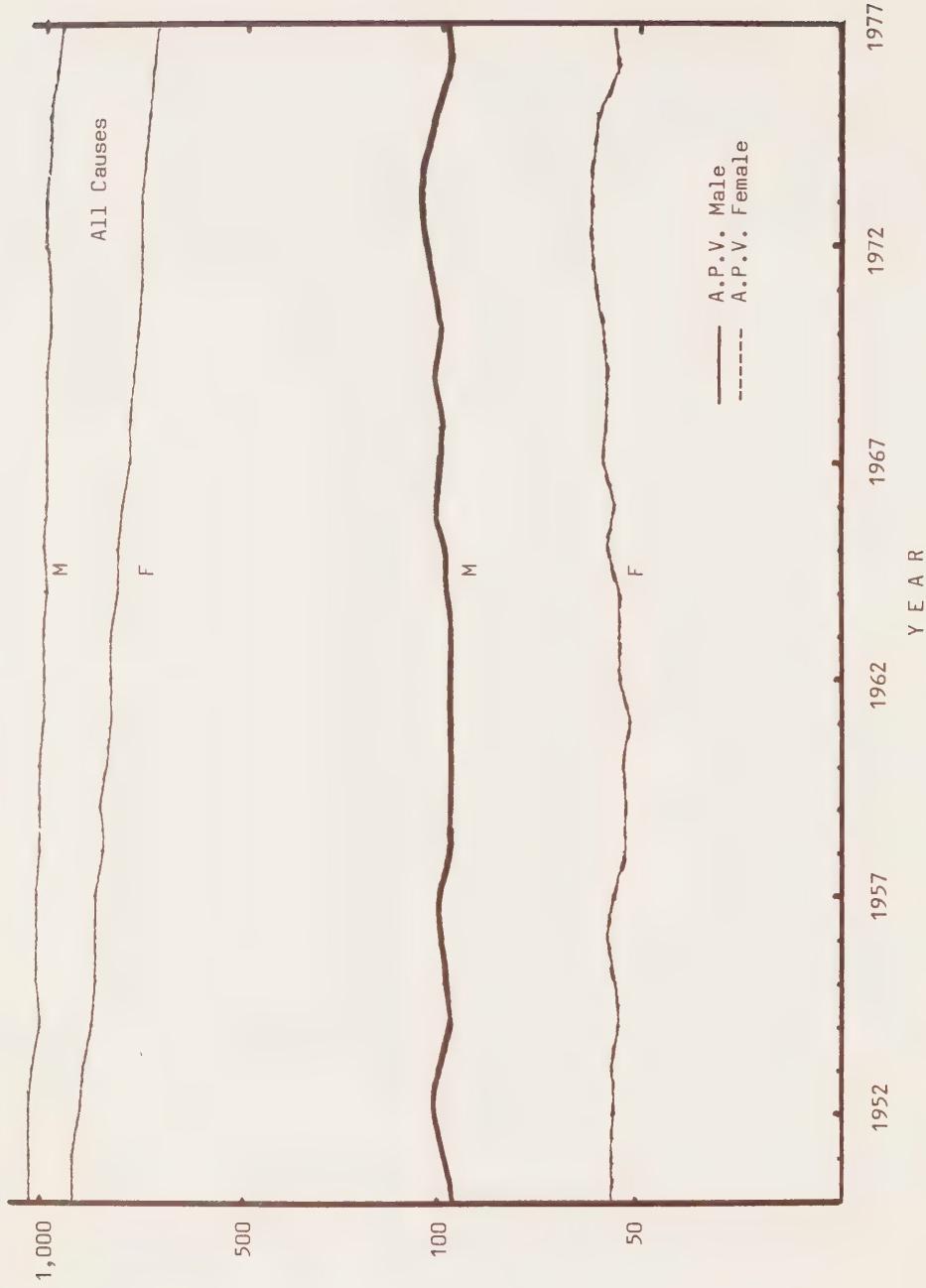
SOURCE: Statistics Canada

5.1 Between 1950 and 1977 age standardized mortality rates for "All Causes" of death have declined by 15% and 37% for males and females respectively. Over the same period those of A.P.V. have remained virtually the same.

5.1

AGE-STANDARDIZED MORTALITY RATES BY SEX  
FOR "ALL CAUSES OF DEATH" AND "ACCIDENTS, POISONING AND VIOLENCE"  
CANADA 1950-1977

Age standardized mortality rates per 100 000



SOURCE: Statistics Canada

5.1 Between 1950 and 1977 age standardized mortality rates for "All Causes" of death have declined by 15% and 37% for males and females respectively. Over the same period those of A.P.V. have remained virtually the same.

5.2

DEATHS ATTRIBUTED TO SELECTED ACCIDENTS, POISONING  
AND VIOLENCE (E850 - E877)

Age-Standardized Mortality Rates  
Canada 1966-1977

MALE	Year	All Accidents	Motor Veh. Acc.	Acc. Poisoning	Acc. Falls	Fire & Flames	Drowning	Suicide	Homicide
	1966	101.3	41.0	3.1	9.9	4.1	7.3	13.4	1.5
	1967	99.1	39.7	3.2	9.5	4.3	7.0	13.8	1.8
	1968	98.0	38.7	3.7	9.6	4.1	6.4	14.7	1.9
	1969	101.9	39.9	4.1	9.4	4.1	7.0	16.0	2.4
	1970	97.3	36.0	4.1	8.5	3.4	6.9	16.5	2.4
	1971	101.5	37.4	4.2	9.5	3.4	5.7	17.4	2.7
	1972	107.2	42.0	4.7	9.2	4.4	5.7	17.3	2.9
	1973	108.5	41.5	4.3	10.1	4.2	6.3	17.8	3.0
	1974	105.9	39.6	4.0	9.3	4.5	5.3	18.3	2.9
	1975	100.4	35.8	3.4	9.6	4.0	5.9	17.1	3.3
	1976	92.6	31.2	3.0	9.0	4.2	5.2	17.5	3.1
	1977	95.0	31.1	3.1	8.9	3.8	4.3	20.1	3.2
Mean 1966-68		99.5	39.8	3.3	9.7	4.1	6.9	14.0	1.7
Mean 1975-77		96.0	32.7	3.1	9.2	4.0	5.1	18.2	3.2
% Change		- 3.5	-17.8	-5.2	-5.2	-3.3	-26.1	+30.3	+81.5
FEMALE									
	1966	36.6	14.2	1.7	7.5	2.3	1.4	4.4	0.9
	1967	38.8	14.9	1.6	7.8	2.6	1.3	4.8	1.2
	1968	38.2	14.3	2.1	7.2	2.4	1.3	5.2	1.2
	1969	38.0	14.1	2.1	6.4	1.9	1.4	6.2	1.1
	1970	38.7	13.1	2.7	6.3	2.5	1.1	6.4	1.5
	1971	40.5	14.6	2.3	6.4	2.5	1.2	6.3	1.4
	1972	41.3	14.7	2.5	6.5	2.4	1.0	6.8	1.6
	1973	41.6	15.9	2.3	5.7	2.3	1.3	6.9	1.6
	1974	41.1	14.8	2.1	6.0	2.7	1.0	6.8	1.7
	1975	39.7	13.6	2.2	6.1	2.3	1.4	6.5	1.7
	1976	35.8	11.6	1.4	5.5	2.3	1.1	6.7	1.6
	1977	36.5	11.5	1.8	5.3	2.0	1.0	6.8	1.6
Mean 1966-68		37.9	19.5	1.8	7.5	2.4	1.3	4.8	1.1
Mean 1975-77		37.3	12.2	1.8	5.6	2.2	1.2	6.7	1.6
% Change		- 1.3	-15.5	0	-25.2	-8.8	-11.5	+37.7	+43.1

SOURCE: Statistics Canada  
Catalogue 84-203

- 5.2 Age-standardized mortality rates for selected A.P.&V. showed a slight diminution among males (-3.5%) and females (-1.3%) during the period 1966-1977. Nevertheless, while a moderate decline has occurred in M.V.A. and drowning, only a slight decrease took place for poisoning, fire and falls (with the exception of falls among females which have declined by 25%). In contrast, suicide and homicide have increased dramatically in both sexes.

5.3

HOSPITAL PATIENT DAYS  
"ACCIDENTS, POISONING AND VIOLENCE" AND "ALL CAUSES"  
CANADA 1970-1976

YEARS	ACCIDENTS, POISONING AND VIOLENCE <sup>(1)</sup>						ALL CAUSES <sup>(1)</sup>		
	MALE		FEMALE		TOTAL		MALE	FEMALE	TOTAL
	No.	% <sup>(2)</sup>	No.	% <sup>(2)</sup>	No.	% <sup>(2)</sup>	No.	No.	No.
1970	1 892 963	10.6	1 678 310	7.4	3 571 273	8.8	17 714 406	22 642 613	40 357 019
1971	1 939 181	10.6	1 733 356	7.5	3 672 537	8.9	18 148 232	23 080 081	41 228 313
1972	1 999 571	10.7	1 753 622	7.4	3 753 193	8.9	18 555 269	23 471 970	42 027 231
1973	2 019 298	10.9	1 774 886	7.6	3 794 184	9.1	18 432 754	23 157 476	41 590 230
1974	2 001 108	10.8	1 810 016	7.7	3 811 124	9.1	18 442 744	23 398 745	41 841 489
1975	1 908 949	10.6	1 722 249	7.7	3 681 198	8.9	17 964 800	22 959 711	40 924 511
1976	1 842 806	10.5	1 744 833	7.8	3 587 639	9.0	17 400 375	22 218 925	39 619 300

(1) By ICDA CHAPTERS

(2) Percent of Hospital days due to all causes

SOURCE: Statistics Canada  
 Hospital Morbidity  
 Catalogue 82-206

5.3 Utilization of Hospital patient-days for "All Causes" has declined slightly since 1972, while the utilization for A.P.&V. has increased slightly.

## 6. VICTIMS



## 6. VICTIMS

### Time

6.1

#### ACCIDENT DEATHS BY MONTH CANADA - 1977

TYPE OF ACCIDENT	TOTAL FATALITIES	MONTHLY AVERAGE	MONTH OF DEATH											
			JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Motor Vehicle Accidents	5255	438	286	236	317	349	486	488	615	616	496	539	505	322
Water Transport	246	21	4	1	7	10	55	40	38	32	23	26	10	--
Falls	1818	151	180	119	129	144	156	159	148	163	163	157	129	171
Fire	686	57	80	77	68	68	42	44	51	47	45	42	53	69
Drowning	621	52	18	12	29	31	82	92	153	85	53	31	28	7
Industrial Type	616	51	59	47	47	46	49	65	60	59	49	49	36	50
Poisoning	587	49	60	46	59	41	39	39	40	66	45	51	54	47
Suffocation	496	41	45	38	34	38	30	42	50	45	42	46	32	54
Aircraft	174	15	18	7	14	16	9	14	10	13	9	15	25	24
Firearms	100	8	9	8	2	6	3	12	7	3	8	19	18	5
Other Accidents	583	49	68	53	45	39	43	32	56	44	37	44	52	70
TOTAL	11182	932	827	644	751	788	994	1027	1228	1173	970	1019	942	819

SOURCE: Canada Safety Council  
Accident Fatalities 1977

6.1 The distribution of 11 182 accident fatalities for which the month of occurrence was stated is shown for 1977:

- motor vehicle and water transport accidents increase from May to August and decrease later in the year;
- Drowning deaths have a similar distribution, but peak in July instead of August;
- In contrast, the other types of accidental deaths do not show such a marked seasonal predominance although some of them (falls and fires) tend to occur more frequently in the winter months.

Place

6.2

DEATHS ATTRIBUTED TO ACCIDENTS - CANADA AND PROVINCES 1977

CAUSES	Nfld.	PEI.	N.S.	N.B.	Qué.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
Motor Vehicle (traffic)	77	51	179	220	1 480	1 404	190	263	605	689	6	3	5 167
Suicide	37	9	66	54	400	657	68	87	138	302	-	-	1 818
Falls	21	12	94	72	777	1 216	180	146	344	438	5	12	3 317
Drowning	28	12	33	26	214	246	60	36	41	135	1	11	843
Fire	15	4	31	43	138	205	68	33	66	76	1	6	686
Industrial Type	11	1	22	19	144	190	37	37	71	84	-	-	616
Homicide	2	1	13	16	158	179	39	36	59	89	3	2	597
Poisoning	1	-	23	16	44	243	26	23	48	158	-	5	587
Suffocation	3	4	20	17	125	184	35	35	35	37	-	1	496
Aircraft	6	3	-	4	19	25	6	11	31	60	-	9	174
Firearms	4	1	6	10	17	19	11	9	10	11	-	2	100
A.P.&V.	38	9	25	25	694	377	61	66	129	155	11	10	1 600
ALL ACCIDENTS	243	107	512	522	4 210	4 945	781	782	1 577	2 234	27	61	16 001

SOURCE: Canada Safety Council  
Accident Fatalities 1977

6.2 The distribution of accidents for Canada and provinces is shown in terms of absolute numbers. Of the 12 000 annual deaths almost one-half can be attributed to motor vehicles. Deaths from this cause are slightly higher in Quebec than Ontario. However, Quebec has fewer than expected numbers of suicides and deaths from falls. British Columbia shows unduly large numbers of deaths from suicides, falls, drowning, homicide and poisoning.

DEATHS ATTRIBUTABLE TO SELECTED ACCIDENTS, POISONING AND VIOLENCE  
AGE STANDARDIZED MORTALITY RATES  
CANADA AND PROVINCES - 1977

DIAGNOSIS	SEX	CANADA	NFLD.	PEI	NS	NB	QUE.	ONT.	MAN.	SASK.	ALTA.	BC
Motor Vehicle Accidents	M	31.1	20.3	59.4	31.5	43.9	33.7	23.6	33.9	38.0	43.8	36.6
	F	11.5	6.7	79.4	9.0	17.7	11.2	8.9	9.3	15.0	17.4	16.0
Accidental Falls	M	8.9	10.2	11.4	8.1	8.1	8.8	8.8	10.0	8.9	8.4	11.1
	F	5.3	4.8	2.1	4.4	5.8	5.1	5.2	2.7	4.5	6.0	7.4
Fire and Flames	M	3.8	4.6	3.1	4.6	10.7	2.7	3.0	7.9	4.1	5.0	3.7
	F	2.0	0.9	3.9	2.3	2.0	1.8	1.8	4.1	2.6	2.0	2.2
Drowning	M	4.3	4.2	9.5	3.3	4.0	5.4	3.4	16.0	3.7	2.1	5.1
	F	1.0	2.3	3.5	0.8	1.4	1.0	1.0	1.5	0.4	0.1	1.6
Suicide	M	20.1	7.2	17.9	16.6	16.5	16.9	19.7	26.9	23.6	26.9	23.8
	F	6.8	0.7	1.6	4.4	4.2	5.9	7.7	6.6	5.9	8.0	8.8
Homicide	M	3.2	0.7	1.6	2.3	4.0	3.1	2.7	4.9	4.7	4.0	4.5
	F	1.6	-	-	0.8	0.5	1.5	1.4	2.4	3.0	1.8	2.2

SOURCE: Statistics Canada

After correcting for differences attributable to the age structure of the population (standardized rates) it becomes apparent that the higher rates are those of Atlantic and Western provinces.

The following examples support this general statement:

- In motor vehicle accidents, P.E.I., N.B. and Alberta exhibited the highest rates for both male and female;
- Accidental falls: P.E.I., Man. and B.C. showed the highest rates for males, while Alberta and B.C. had the highest among females;
- In terms of fire and flames, N.B. for males and particularly Man. for both sexes ranked high;
- Drowning: P.E.I. for both sexes and Man. for males showed the highest rates; and
- Suicide and homicide mortality rates were higher in Man., Sask., Alberta and B.C. particularly for males.

This distribution is geographically represented in maps 2, 3 where Age Standardized mortality rates for 1976 have been analyzed in terms of Census Divisions.

The various shade levels in the map depict census divisions with significantly and not significantly high or low mortality (ranked into deciles). Vast areas with low population density were excluded (non-ecumene).

It is interesting to observe that most of the areas with significantly higher mortality are concentrated in the Atlantic and Western provinces and in a few areas of Ontario, not necessarily in correspondence with higher population density.

It is also remarkable to observe that female rates differ not only in terms of the level of mortality but also in terms of distribution as well.



\*Mortality rates were based on the years 1972 to 1976 for British Columbia and 1974 to 1976 for Saskatchewan and Newfoundland.

\*Les taux de mortalité sont basés sur les années 1972 à 1976 pour la Colombie-Britannique et 1974 à 1976 pour la Saskatchewan et Terre-Neuve.

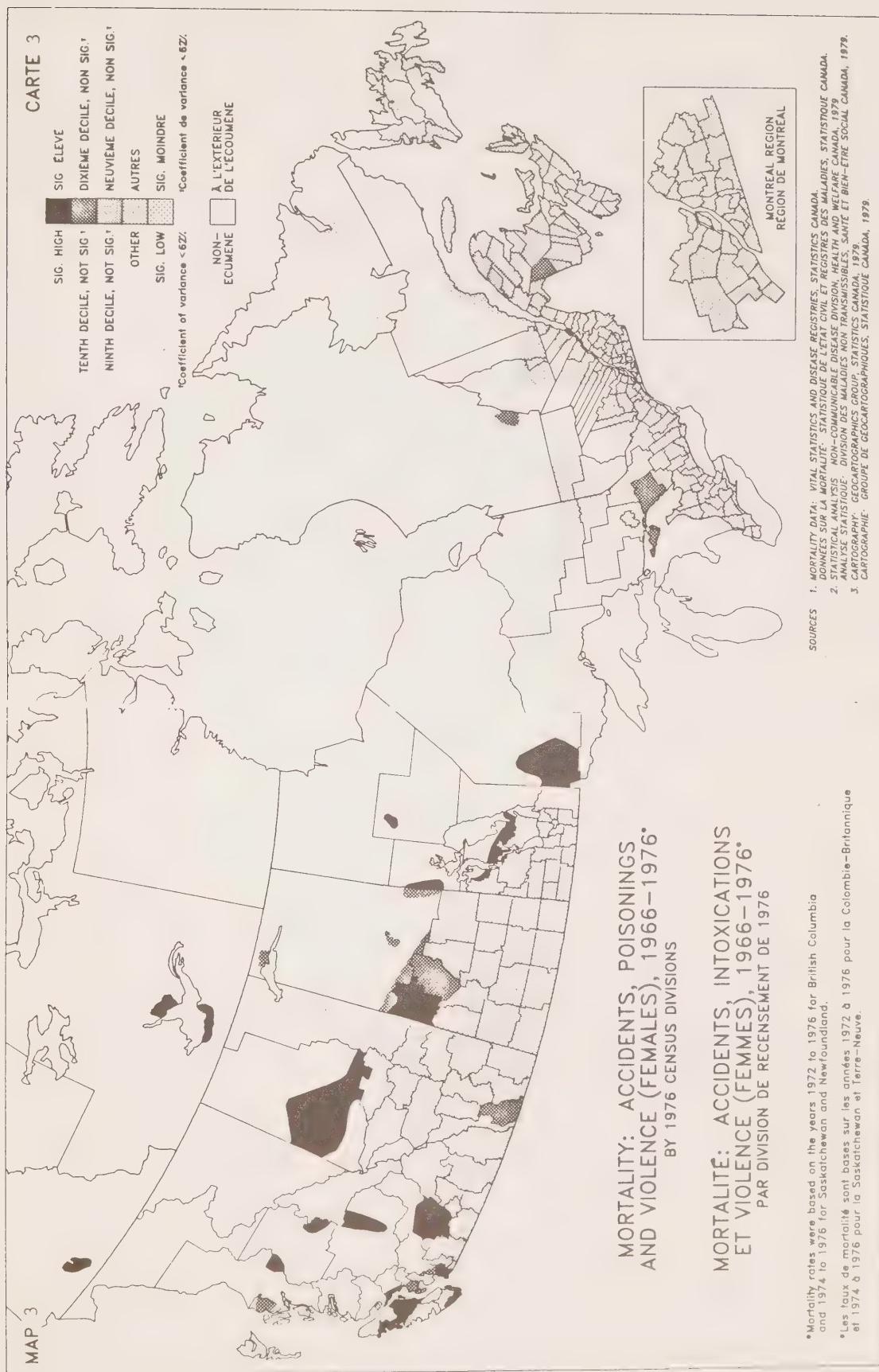
SOURCES

1. MORTALITY DATA. VITAL STATISTICS AND DISEASE REGISTRIES. STATISTICS CANADA.
2. DONNÉES SUR LA MORTALITÉ. STATISTIQUE DE L'ÉTAT CIVIL ET REGISTRES DES MALADIES. STATISTIQUE CANADA.
3. ANALYSE STATISTIQUE. DIVISION DES MALADIES NON TRANSMISSIBLES. SANTÉ ET BIEN-ÊTRE SOCIAL CANADA, 1979.

\*Les taux de mortalité sont basés sur les années 1972 à 1976 pour la Colombie-Britannique et 1974 à 1976 pour la Saskatchewan et Terre-Neuve.

SOURCES

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3. ANALYSE STATISTIQUE. DIVISION DES MALADIES NON TRANSMISSIBLES. SANTÉ ET BIEN-ÊTRE SOCIAL CANADA, 1979.



MAPS 2 and 3 The distribution of mortality is not homogeneous. There are areas with significantly higher mortality, not necessarily in correspondence with population density.

6.4

NON-TRANSPORT ACCIDENT DEATHS BY PLACE OF OCCURRENCE  
CANADA 1977

PLACE OF OCCURRENCE	HOME % RESIDENTIAL		OCCUPATIONAL		RECREATIONAL AND SPORT		STREET OR HIGHWAY		PUBLIC BUILDING		OTHER		NOT SPECIFIED		TOTAL	
	CAUSE	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO
FALLS	1 035	56.8	60	3.2	5	0.2	41	2.3	54	3.0	83	4.6	540	29.9	1 818	100.0
DROWNING	84	9.9	29	3.4	28	3.3	4	0.5	3	0.4	634	75.3	61	7.2	843	100.0
FIRE	588	85.8	13	1.9	1	0.1	3	0.3	35	5.1	9	1.3	37	5.5	686	100.0
INDUSTRIAL	104	16.9	293	47.6	11	1.8	68	11.0	9	1.4	79	12.8	52	8.5	616	100.0
POISONING	329	56.0	19	3.2	1	0.2	20	3.4	14	2.4	51	8.8	153	26.0	587	100.0
SUFFOCATION	216	44.0	22	4.5	1	0.2	5	1.0	14	2.9	17	3.4	216	44.0	491	100.0
FIREARMS	44	44.0	11	11.0	-	-	2	2.0	-	-	29	29.0	14	14.0	100	100.0
OTHER	56	12.7	35	8.0	3	0.7	23	5.2	4	0.9	75	17.0	245	55.5	441	100.0
TOTAL	2 456	44.0	482	8.6	50	0.9	166	3.0	133	2.4	977	17.5	1 318	23.6	5 582	100.0

SOURCE: Canada Safety Council  
Accident Fatalities 1977

6.4 Out of 5582 non-transport accident deaths in 1977:

- Almost 80% of those where the place of occurrence was specified took place at home or other residence;
- 75% of the drownings occurred at places other than those specified in the table (presumably in waterways);
- 85% of fire deaths and 76% and 78% respectively of poisoning and suffocation deaths (where the place of occurrence was specified) took place at homes and residences. In addition, 44% of firearm deaths occurred in the same place;
- Only one-half (48%) of industrial type accident deaths occurred at places of work, while 14% occurred in streets and highways, and another 12% in other places.

Person

6.5

NON-TRANSPORT ACCIDENT DEATHS OCCURRING IN HOMES  
BY AGE GROUPS  
CANADA 1977

CAUSE	AGE	0 - 1		1 - 4		5 - 14		15 - 29		30 - 49		50 - 69		>70		TOTAL	
		NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
FALLS		7	0.9	4	0.5	8	1.1	12	1.7	54	7.6	190	26.9	439	61.3	714	100.0
DROWNING		4	4.8	33	39.7	7	8.4	12	14.5	12	14.5	8	9.7	7	8.4	83	100.0
FIRE		11	1.9	73	13.0	47	8.3	107	19.0	117	20.8	124	22.0	85	15.0	564	100.0
POISONING		1	0.3	5	1.5	5	1.5	75	23.1	129	39.8	91	28.0	18	5.5	324	100.0
SUFFOCATION		47	30.1	13	8.3	10	6.4	8	5.1	26	16.6	35	22.4	17	10.8	156	100.0
INDUSTRIAL TYPE		2	2.1	3	3.2	12	12.7	23	24.5	23	24.5	23	24.5	8	8.5	94	100.0
FIREARMS		0	0	0	0	13	29.5	18	41.0	6	13.6	7	15.9	0	0	44	100.0
OTHER--NON-TRANSPORT		1	2.9	2	5.7	1	2.9	1	2.9	9	25.7	12	34.2	9	25.7	35	100.0
TOTAL		73	3.6	133	6.6	103	5.1	256	12.7	376	18.6	490	24.5	583	29.0	2014	100.0

SOURCE: Canada Safety Council  
Accident Fatalities 1977

6.5 In 1977, the distribution of 2014 non-transport deaths occurring in homes showed that:

- 61% of those due to falls occurred over age 70 and 86% of them over age 50;
- Drowning and firearm deaths were mostly young people; 45% of the drownings occurred under age 4, and 77% of them under age 29, while 70% of firearm deaths occurred between 5 and 29;
- Suffocation caused more deaths in the extremes of the age spectrum, 38% under age 4 and 33% over age 50;
- Most of industrial type deaths occurred between age 15 and 69. The same age group was involved in 61% of fire deaths and 90% of deaths due to poisoning.

6.6

DEATH ATTRIBUTED TO MOTOR VEHICLE ACCIDENTS  
BY AGE AND SEX

	1-4	5-14	15-34	35-64	65+	NOT STATED	TOTAL
MALE	81	254	2 253	845	330	4	3 767
FEMALE	54	152	577	418	193	6	1 400
M/F RATIO	1.5	1.6	3.9	2.0	1.7	-	2.6
TOTAL	135	406	2 830	1 263	523	10	5 167
PERCENTAGE	2.6	7.8	54.8	24.4	10.2	0.2	100.0

SOURCE: CANADA SAFETY COUNCIL - ACCIDENT FATALITY 1977.

- 6.6 Deaths attributed to motor vehicle accidents were concentrated in the 15-34 age group. In 1977, 54.8% of those deaths occurred in that particular age group, which also exhibited the highest male to female ratio (3.9 to 1).

PERCENT OF DEATHS ATTRIBUTED TO ACCIDENT RANKED BY CAUSE: CANADA 1977

MALE													
0-9		10-19		20-29		30-39		40-49		50-59		60-69	
CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%
Motor Vehicle Traffic	5.8	Motor Vehicle Traffic	42.3	Motor Vehicle Traffic	33.4	Suicide	15.0	Suicide	6.6	Suicide	2.8	Motor Vehicle Traffic	1.1
Fire	1.9	Suicide	11.9	Suicide	19.3	Motor Vehicle Traffic	14.7	Motor Vehicle Traffic	4.9	Motor Vehicle Traffic	2.1	Suicide	1.0
Falls	0.7	Fire	1.7	Homicide	3.2	Poisoning	2.8	Poisoning	1.5	Falls	0.9	Falls	0.7
Homicide	0.7	Homicide	1.7	Poisoning	2.3	Homicide	2.7	Falls	1.2	Fire	0.5	Fire	0.2
Poisoning	0.2	Falls	1.6	Fire	1.8	Fire	1.7	Homicide	1.1	Poisoning	0.4	Homicide	0.1
Suicide	0.1	Poisoning	1.2	Falls	1.5	Falls	1.6	Fire	0.9	Homicide	0.3	Poisoning	0.1
All Accidents <sup>(1)</sup>	16.7	All Accidents	80.8	All Accidents	79.6	All Accidents	52.5	All Accidents	22.9	All Accidents	10.0	All Accidents	4.2

FEMALE													
0-9		10-19		20-29		30-39		40-49		50-59		60-69	
CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%	CAUSE	%
Motor Vehicle Traffic	4.6	Motor Vehicle Traffic	38.4	Motor Vehicle Traffic	21.8	Suicide	10.8	Suicide	4.9	Suicide	2.6	Motor Vehicle Traffic	1.2
Fire	2.4	Suicide	7.0	Suicide	15.2	Motor Vehicle Traffic	9.7	Motor Vehicle Traffic	4.3	Motor Vehicle Traffic	2.3	Suicides	8.9
Homicides	0.7	Homicide	2.4	Homicide	5.0	Homicide	2.5	Poisoning	1.5	Poisoning	0.7	Falls	0.6
Falls	0.4	Fire	2.3	Poisoning	3.5	Poisoning	2.3	Homicide	0.9	Falls	0.5	Fire	0.2
Poisoning	0.3	Poisoning	2.2	Fire	2.6	Fire	1.5	Falls	0.6	Fire	0.4	Poisoning	0.1
Suicide	0	Falls	1.1	Falls	0.8	Falls	0.2	Fire	0.5	Homicide	0.2	Homicide	0.1
All Accidents <sup>(1)</sup>	14.5	All Accidents	62.6	All Accidents	57.8	All Accidents	33.5	All Accidents	16.3	All Accidents	8.5	All Accidents	3.9

SOURCE: Statistics Canada Catalogue 84-203

(1) Includes: All accident, Poisoning and Violence

- 6.7 A.P.&V. are the most important cause of death for males between 10 and 39, and for females between 10 and 29. It is remarkable to note that A.P.&V. constitute 80% of deaths in males aged 10 to 29. Among accident deaths, motor vehicle accidents rank first and suicide as the second most frequent cause of death in the first three decades of life. After age 30 suicide becomes the most frequent cause of death in this category.

6.8

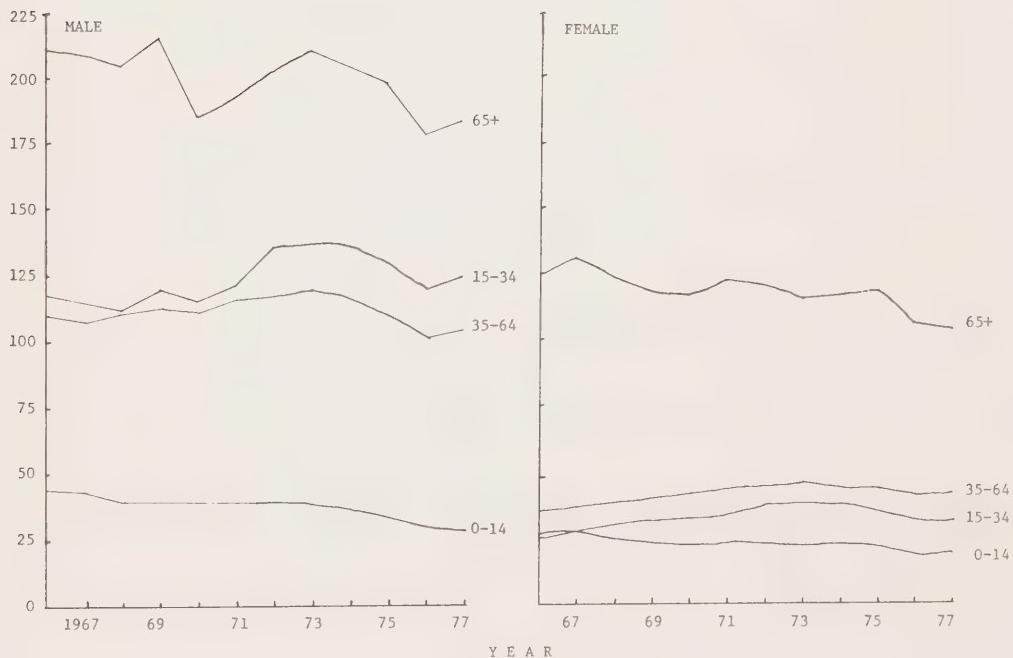
ACCIDENTS/POISONINGS/VIOLENCE 800-999  
CANADA 1966 - 1977

Age Standardized Mortality Rates and Percent Change

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	101.3	44.7	118.3	110.1	210.1	36.6	25.1	26.5	35.4	124.3
1967	99.1	43.9	115.1	107.7	208.2	38.8	27.2	27.9	37.5	130.6
1968	98.0	40.2	112.6	111.3	203.7	38.2	23.9	30.3	38.2	122.9
1969	101.9	40.2	120.3	113.1	214.8	38.0	22.7	30.7	39.6	117.4
1970	97.3	39.6	115.8	111.3	184.8	38.7	22.1	32.2	41.3	116.2
1971	101.5	39.7	121.9	116.5	192.1	40.5	23.3	33.4	43.2	122.0
1972	107.2	39.9	136.3	117.3	202.1	41.3	21.7	37.1	44.1	119.9
1973	108.5	38.4	137.3	119.9	209.8	41.6	22.0	38.0	45.3	114.8
1974	105.9	37.0	135.9	116.0	203.9	41.1	22.7	37.1	43.2	116.9
1975	100.4	33.5	129.2	109.9	197.0	39.7	21.2	34.0	43.2	118.2
1976	92.6	31.2	119.6	101.6	177.9	35.8	17.5	31.0	40.4	105.5
1977	95.0	29.2	124.8	104.7	183.7	36.5	18.5	31.7	41.6	103.4
MEAN 1966-68	99.5	42.9	115.3	109.7	207.3	37.9	25.4	28.3	37.0	125.9
MEAN 1975-77	96.0	31.3	124.5	105.4	186.2	37.3	19.0	32.2	41.7	109.9
% CHANGE	-3.5	-27.0	-7.9	-3.9	-10.1	-1.3	-24.9	+14.0	+12.7	-13.4

SOURCE: Statistics Canada

ACCIDENTS POISONING AND VIOLENCE (800-999)  
AGE STANDARDIZED MORTALITY RATE (PER 100 000)  
CANADA 1966-1977

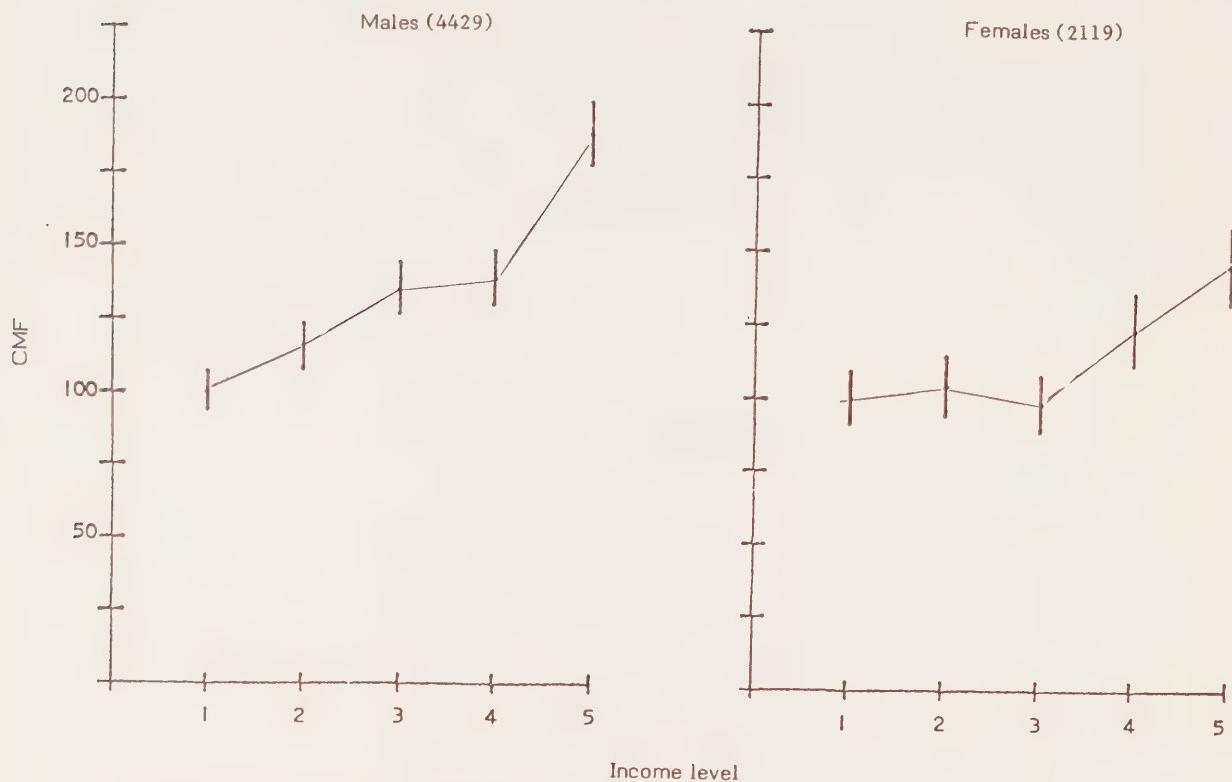


- 6.8 Age standardized mortality rates for A.P.&V. by all age groups have declined by 3.5% for males and 1.3% for females and the male to female ratio still remains over 2.5 to 1. While mortality rates are higher in the older age groups, males aged 15-34 exhibit excessively high rates. Expressing the changes in the rates as percentages, it may be noted the 0-14 age group is declining most, followed by those over age 65. Males between 15 and 64 have experienced a slight decline, and females in those age groups exhibit a higher rate.

6.9

ACCIDENTS, POISONINGS AND VIOLENCE (ALL AGES)

Age standardized mortality rates for 21 Metropolitan Census Divisions by Income  
CANADA 1971



- (1) Comparative mortality figures  
Mortality by Income Level in Urban Canada

SOURCE: Health and Welfare Canada, 1980

6.9 To examine mortality by levels of income, 1971 age standardized mortality rates from 2228 census tracts (located in 21 census metropolitan areas) were marked by median household income and divided into 5 groups (approximating quintiles).

Comparative mortality figures were then calculated as the ratios ( $\times 100$ ) of the age standardized mortality rates (ASMRs) for a given income level divided by the ASMR for the highest income level.

- male mortality is 88% higher in the lower than in the higher income level;
- among females a gradient between low and high income level is also visible but the difference is less marked (less than 50%).

## 7. GENERAL PATTERNS



## 7. GENERAL PATTERNS

Based on the foregoing sections it is clear that accident fatalities due to diverse causes differ considerably in terms of their distribution by time, place and person. If such distributions (by age, sex, place of occurrence, season or other factors) are utilized as criteria to deliberately differentiate them, the following general patterns may be identified:

- 7.1 Accidental deaths mostly affecting adolescents and young adults (15-34); predominantly males (over 2 to 1); occurring more frequently in the warm season; taking place outdoors (street, highway, waterway, etc.). Motor vehicle traffic accidents are the most characteristic of this group which may be regarded as that of "transport accidents". Drowning deaths may be included here as well, even though most of them may not be related to water transport.
- 7.2 Fatalities affecting older adults (over age 30 or even over 50) among whom there is a slight male predominance but not as marked (under 1.5 to 1). Most of these occur with similar frequency throughout the year or sometimes with a seasonal predominance in the winter months, and take place indoors (homes and residences) in 75% to 85% of the cases. These may be called "domestic accidents", falls, fires and poisoning being the most representative of this group. Suffocation, while occurring in homes and residences only in 44% of the cases and affecting the extreme age groups, may be included in this group as well.
- 7.3 Even though these deaths also affect young adults (15-49), predominantly males, they are different from the first group not only in terms of their place of occurrence (mostly indoors) and seasonal distribution (peak in May) but also because this group is the only one whose rates are increasing in all the provinces and age groups for both sexes. The most representative example of this group is that of suicides, although homicides has many similarities.

The so-called "industrial accidents" affect mostly males in the "working age groups" (15-64) in occupational sites and, therefore, show a distinct pattern.

The grouping of accidents into the four patterns "loosely" delineated in the preceding paragraph is by no means exhaustive. It was merely intended to facilitate their description and hopefully the understanding of common factors that may be involved in their causation and, therefore, in their potential prevention.

The patterns will be successively characterized and presented as:

- Motor vehicle accidents;
- Home (or domestic accidents);
- Industrial accidents;
- Other violence (characterized by suicides and homicides).



## 8. MOTOR VEHICLE ACCIDENTS



## 8. MOTOR VEHICLE ACCIDENTS

### General Trends

8.1

#### ROAD MOTOR VEHICLES REGISTERED, GASOLINE SALES AND ESTIMATED VEHICLES-KILOMETRES CANADA 1973-1977

##### VEHICLES REGISTERED

(In Thousands)	1973	1974	1975	1976	1977	% Change
Automobiles	7 866	8 328	8 693	9 016	9 554	+21.4
Trucks & Buses	1 844	2 026	2 177	2 319	2 494	+35.2
Motorcycles	288	320	327	314	372	+29.1
TOTAL	9 998	10 674	11 197	11 676	12 421	+24.2

##### NET SALES OF GASOLINE AND ESTIMATED VEHICLE KILOMETRE

Million Litres(1)	29 080.1	30 337.9	31 824.0	32 437.6	33 277.4	
Million Kilometre Driven(2)	160 522.6	169 077.7	174 370.7	179 078.9	183 691.2	+14.4

(1) rounded figures

(2) estimative fuel consumption at 5.52 kilometre/litre

SOURCE: Statistics Canada  
Road Motor Vehicles Registrations and Fuel Sales

8.1 Between 1973 and 1977 the number of automobiles registered in Canada has increased by 21%, but motorcycles increased by 29% and trucks and buses by 35%. In the same period, gasoline sales (expressed in million litres) and subsequently the estimated number of kilometres driven increased only by 14%.

Canadians are not only driving less (14 778 instead of 16 055 estimated kilometres per vehicle annually), but also are buying in proportion more motorcycles, trucks and buses than automobiles. (Additional information not shown here indicates that the average size and weight of automobiles has decreased and that presumably the number of passengers per vehicle has slightly increased).

8.2

TRAFFIC ACCIDENT, OFFENCES AND VICTIMS  
CANADA 1972-1977

YEAR		1973	1974	1975	1976	1977 <sup>(1)</sup>	% Change
<b>ACCIDENTS</b>							
Fatal	No. Rate(2)	5 479 24.8	5 204 23.8	5 109 22.5	4 477 19.4	4 425 19.0	-23.3
Non-Fatal Injury	No. Rate(3)	149 697 67.9	155 738 69.6	149 765 65.9	137 794 59.9	140 207 60.2	-11.3
Property Damage (over \$200)	No. Rate(3)	397 970 180.5	462 823 206.9	492 428 217.1	496 817 216.0	605 399 260.3	+44.2
<b>VICTIMS</b>							
Killed	No. Rate(2)	6 706 30.4	6 290 28.1	6 061 26.7	5 307 33.1	5 167 22.2	-26.9
Injured	No. Rate(3)	223 777 101.5	229 641 102.6	220 941 97.3	199 687 86.8	201,643 86.7	-14.5
<b>OTHER TRAFFIC OFFENCES</b>							
Federal Statutes	No. Rate(1)	8 734 39.5	10 395 46.3	13 280 58.2	14 734 63.8	17 429 74.8	+89.4
Provincial Statutes	No. Rate(2)	2 140 243 968.6	2 269 590 1011.1	2 371 492 1040.1	2 674 074 1157.1	2 789 894 1197.8	+23.7
Municipal By-Laws	No. Rate(2)	401 833 181.8	318 690 141.9	323 404 141.8	357 940 154.8	393 122 168.7	-7.2
Parking Violations	No. Rate(2)	5 140 216 2326.4	6 545 172 2915.9	7 094 775 3111.7	7 760 018 3357.8	8 123 136 3487.6	+49.9

(1) provincial figures

(2) rates per 1 000 000 population

(3) rates per 10 000 population

SOURCE: Statistics Canada  
Motor Vehicle Traffic Accidents  
Crime and Traffic Enforcement

8.2 Fatal accidents decreased by 23%, while those causing non-fatal injuries decreased by 11.3% between 1973 and 1977. The rates of victims killed and injured per 1 000 000 population have also decreased. During the same period, however, accidents resulting in property damage, parking violations and some other traffic offences have been generally increasing by 44, 49 and 59% respectively.

The cause(s) of the decline in fatal (and to a lesser extent in non-fatal) accidents have not as yet been conclusively identified. The possible role of various factors is commented upon below.

8.3

ACCIDENTS AND VICTIMS RATES  
PER 100 000 000 KILOMETERS<sup>(1)</sup>  
CANADA 1973-1977

ACCIDENTS RATES

TYPE \ YEAR	1973	1974	1975	1976	1977	% change
Fatal	3.4	3.1	2.9	2.5	2.4	-29.4
Non Fatal	93.2	92.1	85.9	76.9	76.3	-18.1
Property Damage	247.9	273.7	282.4	277.4	329.5	+32.9

VICTIM RATES

Killed	4.2	3.7	3.4	3.0	2.8	-33.3
Injured	139.4	135.8	126.7	111.5	109.7	-21.3

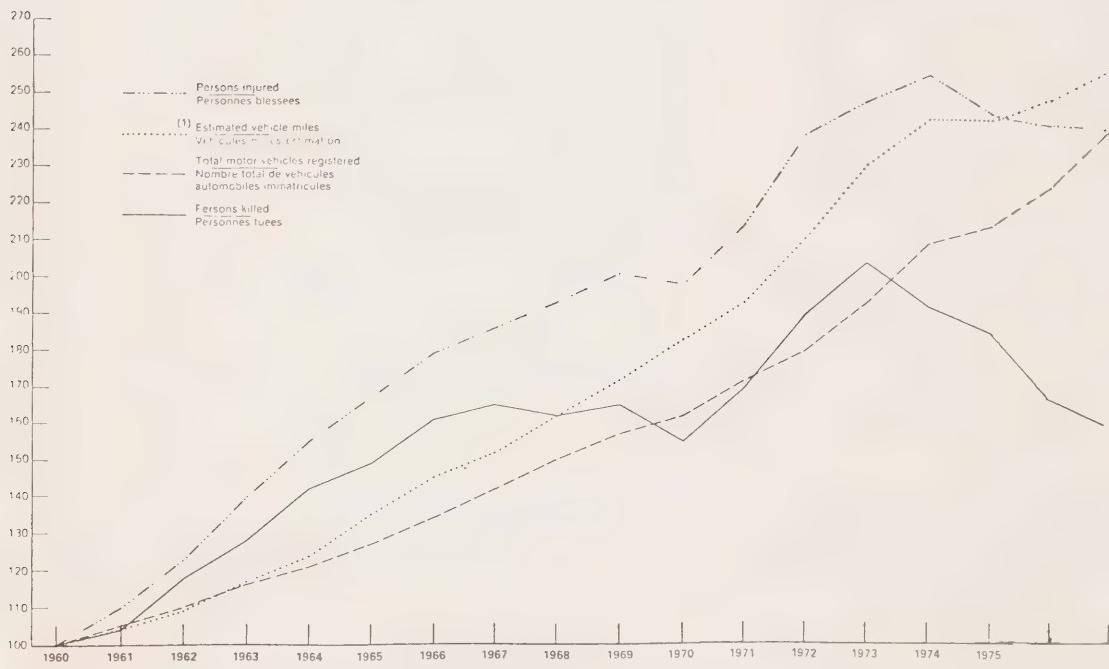
(1) estimated from net gasoline sales

SOURCE: Statistics Canada  
 Motor Vehicle Traffic Accidents  
 Road Motor Fuel Sales

8.4

Indexes Traffic Deaths and Injuries and Related Data  
Indices des personnes tuées et blessées dans des accidents de la route et autres données

(1960=100)



(1) Vehicle Miles are based on estimated consumption of petroleum fuels and an estimated mileage per gallon 13.72  
 Les véhicules-milles sont calculés d'après une estimation de la consommation du carburant et d'après un millage au gallon de 13.72

8.3 Rates of persons killed or injured per 100 000 000 estimated kilometres driven have decreased during the period 1973 to 1977, while the number of accidents causing property damage per 100 000 000 kilometres continues to increase.

8.4 While the number of motor vehicles registered and estimated vehicle miles driven has increased steadily since 1960, the number of fatalities and persons injured have declined steadily since about 1973.

8.5

MORTALITY FROM MOTOR VEHICLE ACCIDENTS  
SELECTED COUNTRIES, 1965-66 AND 1975-76

	Number of Motor Vehicles per 1000 Population	Average Annual Death Rate				
		Per 100 000 Population		Per 100 000 Registered Motor Vehicles		
Country	1965-66	1975-76	1965-66	1975-76	1965-66	1975-76
United States	482	655	26.3	21.7	54.5	33.0
New Zealand	361	516	20.9	20.5‡	58.0	39.9‡
Canada	346	505	26.4	24.1	76.1	47.7
Australia	342	493	27.9	27.4‡	81.7	56.9‡
France	351	466	24.8	25.5	70.9	54.8
Netherlands	285	411	20.6	17.4	72.5	42.3
West Germany*	219	354	27.5	24.1	125.2	68.1
Denmark	343	345	21.3	16.8	62.1	49.8
Finland	233	340	23.2	19.3‡	99.7	57.6‡
Japan	159	339	14.2	9.2	89.7	27.1
Norway	218	316	11.7	12.6	53.3	39.8
Great Britain†	228	303	14.6	11.6	64.2	38.0
Italy	206	291‡	17.3	17.0‡	84.3	58.5‡

\* Includes West Berlin.

† Includes England and Wales, Northern Ireland, and Scotland.

‡ 1975 only.

Note: Ranked according to number of motor vehicles per 1 000 population in 1975-76.

Source of basic data: World Road Statistics 1972-76, 1977 Edition, International Road Federation, Geneva, Switzerland; 1976 Demographic Yearbook, United Nations; various reports of the National Center for Health Statistics, Statistics Canada, National Safety Council, and Motor Vehicle Manufacturers Association.

Published by Metropolitan Life Insurance Co.

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- 8.5 Statistics from selected countries depict the relationship among motor vehicle deaths, population and number of vehicles registered. While motor vehicle deaths per 100 000 population seem to be higher in countries with more vehicles registered, when those deaths are analyzed in terms of the number of vehicles registered (using 100 000 vehicles as denominator) no such relationship is seen.

### Time, Place and Person

Being aware that there are considerable annual fluctuations, data for one single year (the last available) have been used in the following tables merely for the purpose of illustration.

#### Time

##### 8.6 MOTOR VEHICLE TRAFFIC ACCIDENTS BY MONTH OF OCCURRENCE CANADA 1976

TYPE \ MONTHS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
<b>FATAL</b>												
NUMBER	242	225	233	314	395	449	526	499	404	403	380	407
RATE (")	1.8	1.8	1.6	2.2	2.6	2.8	3.1	2.9	2.6	2.6	2.5	2.6
<b>NON-FATAL</b>												
NUMBER	9 617	8 675	8 670	8 998	12 582	13 897	13 943	13 627	12 123	12 011	10 860	12 145
RATE	72.4	70.1	62.7	64.0	85.3	87.1	83.0	79.8	78.8	79.9	72.2	78.1
<b>PROPERTY DAMAGE (OVER \$200)</b>												
NUMBER	52 568	45 178	41 217	29 934	34 903	36 183	37 719	36 316	37 188	41 661	44 706	59 173
RATE	396.2	365.0	298.3	212.9	236.7	226.8	224.6	212.6	241.9	277.2	297.4	380.5
<b>ESTIMATED KILOMETRES DRIVEN (2)</b>												
IN MILLIONS	13 268.4	12 376.9	13 817.1	14 056.1	14 745.5	15 947.2	16 789.0	17 075.0	15 370.9	15 025.9	15 030.4	15 548.7

(1) Rate per 100 000 000 kilometres

(2) Estimated at an average of 5.52 kilometres per litre

SOURCE: Statistics Canada  
Transportation and Communication Division

#### 8.6 Months of the Year

In 1976 while the rate of fatal accidents per 100 million kilometres driven, increased between April and December (with a peak in June-August), the rates of accidents causing material damage showed the opposite trend, with the lowest rates in summer months.

Non-fatal accidents revealed a somewhat erratic trend, with higher rates in the warm season.

In that same year the estimated number of kilometres driven was 37% higher in August (highest month) than in February (lowest month).

(In addition to increased exposure (more kilometres driven), other factors raise the risk of fatalities during the warm season such as increased use of rural roads, increased distances travelled at higher speeds etc.).

8.7

MOTOR VEHICLE TRAFFIC ACCIDENTS  
BY TYPE AND DAY OF OCCURRENCE  
CANADA 1976

Day Type \ Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Not Stated	Total
FATAL									
Number %	472 10.5	468 10.4	508 11.3	538 12.0	797 17.1	993 22.1	698 15.6	3 0.06	4 477 100.0
NON-FATAL									
Number %	14 577 10.5	14 732 10.6	15 712 11.4	17 275 12.5	21 585 15.6	22 057 16.0	16 572 12.0	15 290 11.1	137 794 100.0
PROPERTY DAMAGE (OVER \$200)									
Number %	55 188 11.1	54 428 10.9	59 118 11.9	65 024 13.0	80 021 16.1	71 364 14.3	50 982 10.2	60 692 12.1	496 817 100.0

SOURCE: Statistics Canada  
Transportation and Communications Division

8.7 Days of the Week

The percentage of fatal accidents is significantly higher on Friday and Saturday. Accidents causing non-fatal injuries and property damage also increase on weekends, but not to the same extent.

8.8

ACCIDENTS BY TYPE AND HOUR OF OCCURRENCE  
CANADA 1976

HOUR	FATAL		NON-FATAL		PROPERTY DAMAGE	
	Number	%	Number	%	Number	%
0 - 1 A.M.	213	4.7	4 267	3.0	12 859	2.6
1 - 2	254	5.6	5 061	3.6	12 738	2.6
2 - 3	187	4.1	3 243	2.3	8 916	1.8
3 - 4	134	2.9	2 178	1.6	5 930	1.2
4 - 5	73	1.6	1 177	0.9	3 375	0.7
5 - 6	74	1.6	958	0.7	2 792	0.6
6 - 7	79	1.7	1 686	1.2	6 702	1.3
7 - 8	94	2.1	3 261	2.3	14 564	2.9
8 - 9	108	2.4	4 614	3.3	19 951	4.0
9 - 10	93	2.1	3 281	2.4	16 179	3.2
10 - 11	108	2.4	3 867	2.8	18 057	3.6
11 - 12	156	3.5	4 953	3.5	19 841	3.9
12 - 1 P.M.	144	3.2	5 989	4.3	23 215	4.6
1 - 2	172	3.8	6 207	4.4	25 262	5.1
2 - 3	207	4.6	6 702	4.8	26 891	5.4
3 - 4	250	5.6	8 738	6.3	31 763	6.3
4 - 5	292	6.5	10 419	7.5	37 677	7.5
5 - 6	279	6.2	8 930	6.4	30 946	6.2
6 - 7	267	5.9	7 380	5.3	21 832	4.4
7 - 8	269	6.0	7 417	5.4	22 253	4.4
8 - 9	230	5.1	6 235	4.5	19 599	3.9
9 - 10	266	5.9	5 318	3.8	17 319	3.5
10 - 11	220	4.9	4 793	3.4	16 222	3.3
11 - 12	242	5.4	5 168	3.7	16 005	3.2
Not Stated	66	1.4	15 952	11.5	65 929	13.2
Total	4 477	100.0	137 794	100.0	496 817	100.0

SOURCE: Statistics Canada  
Transportation and Communication Division

8.8 HOUR OF DAY

Fatal accidents occur mostly between 3 pm and 2 am, while the other types are concentrated in a shorter time span, 3 to 6 pm.

8.9

MOTOR VEHICLE TRAFFIC ACCIDENTS  
BY PLACE OF OCCURRENCE AND TYPE  
SEVEN PROVINCES AND TERRITORIES AGGREGATE (1)  
CANADA - 1975

PLACE	TYPE	FATAL		NON-FATAL		PROPERTY DAMAGE	
		No.	%	No.	%	No.	%
<u>URBAN</u>							
. Metropolitan Roads and Streets	337	19.0	19 592	43.5	102 519	49.3	
. Urban Areas 10 000 pop. and over	133	7.5	6 704	14.9	32 675	15.7	
. Other Urban Areas under 10 000 pop.	105	5.9	2 852	6.3	15 719	7.5	
Sub-Total Urban	575	32.4	29 148	64.8	150 913	72.6	
<u>RURAL</u>							
. Primary Highways	611	34.4	4 545	10.1	13 169	6.3	
. Secondary Highways	437	24.6	7 973	17.7	30 746	14.8	
. Local and other Roads	153	8.6	3 325	7.4	12 880	6.2	
Sub-Total Rural	1 201	67.6	15 843	35.2	56 795	27.4	
Total	1 776	100.0	44 971	100.0	207 708	100.0	

(1) Nfld., P.E.I., N.S., Man., Sask., Atla., B.C., Yukon & N.W.T.

SOURCE: Statistics Canada  
Motor Vehicle Traffic Accidents

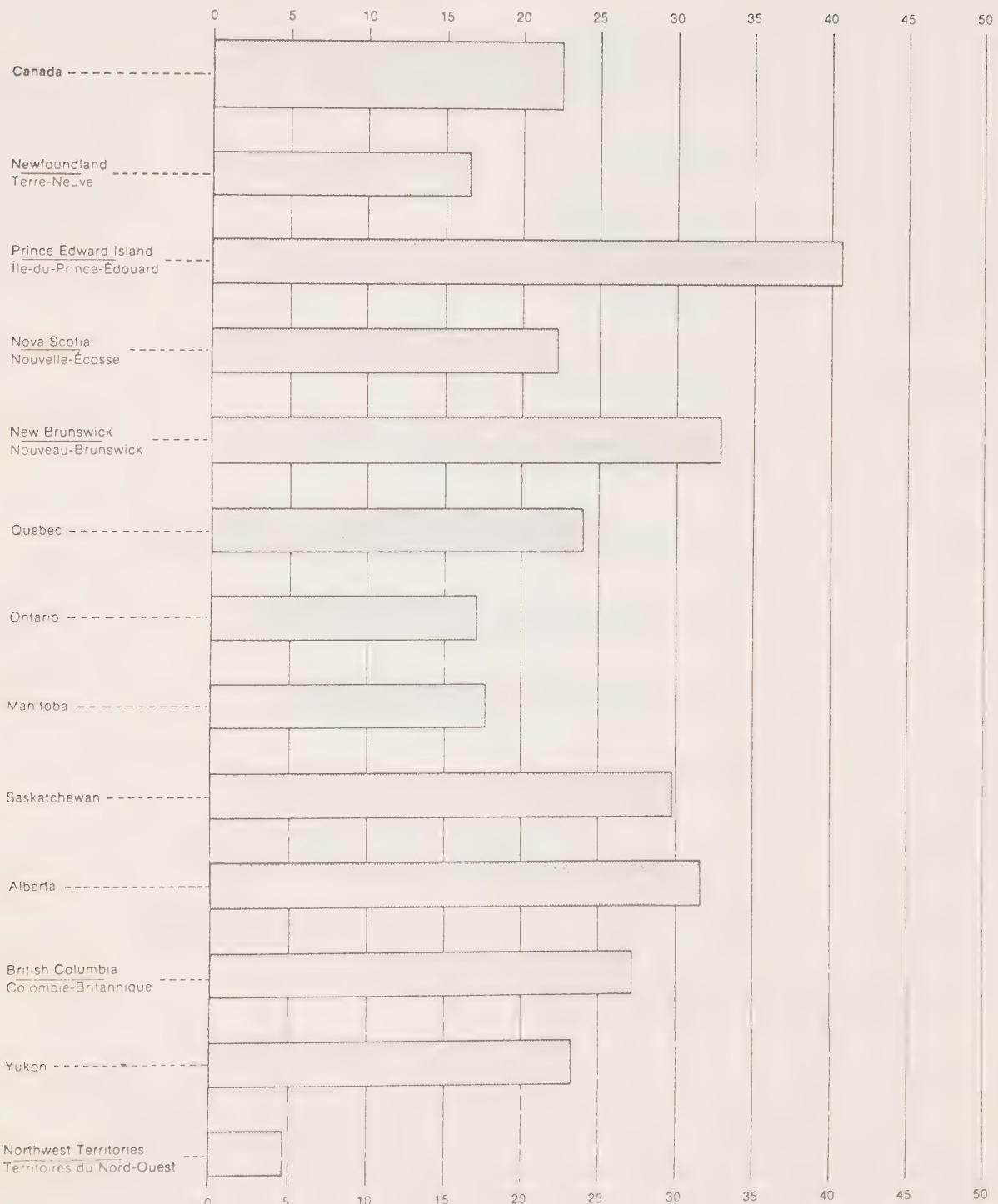
8.9 Two-thirds of fatal accidents occurred on rural highways and roads in 1975. In contrast, 64% and 72% of non-fatal and other accidents occurred on urban roads and streets.

## 8.10

### Traffic — Circulation

Persons Killed, Rate per 100 000 Population, 1977

Personnes tuées, taux pour 100 000 habitants, 1977

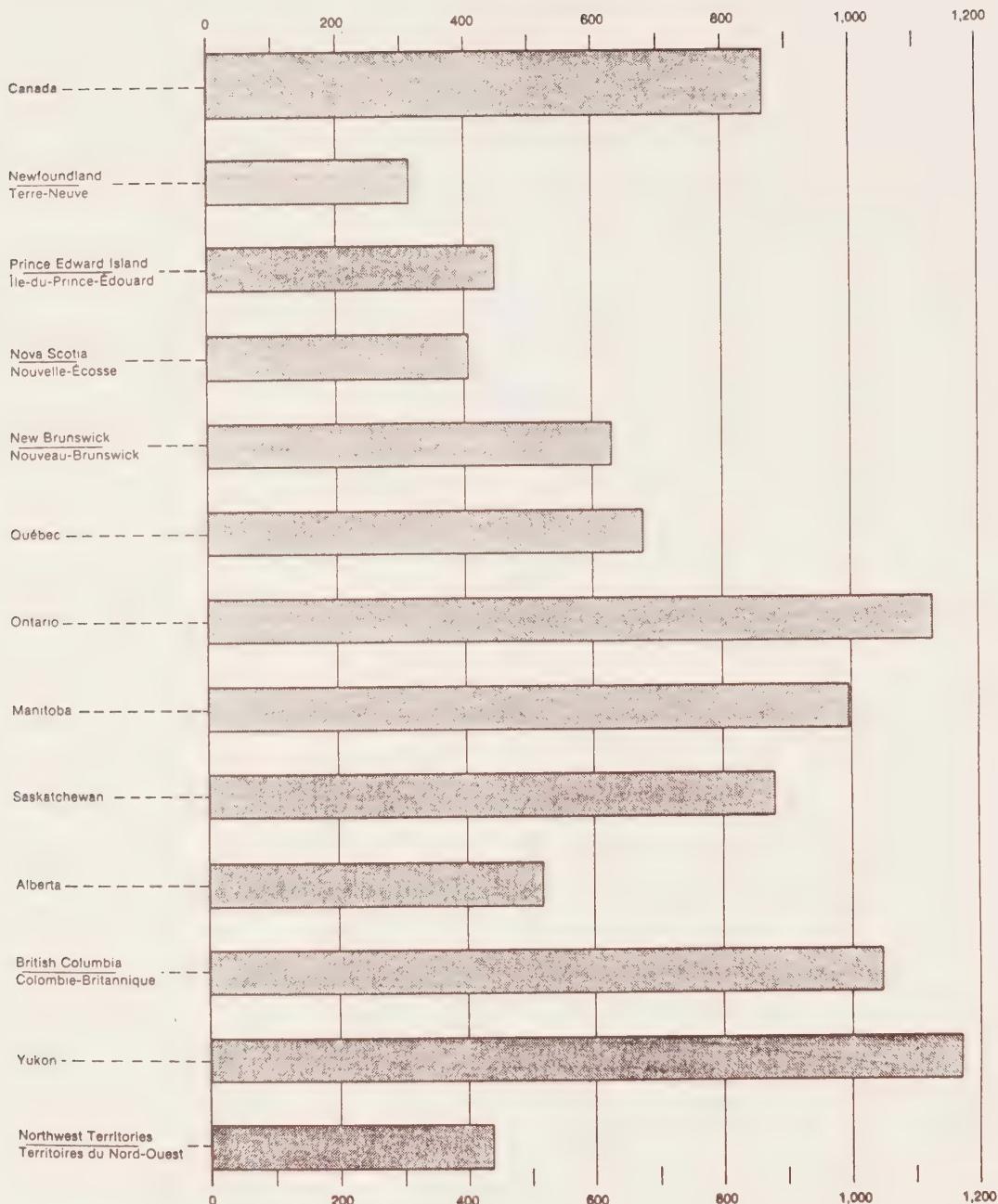


## 8.11

### Traffic — Circulation

Persons Injured, Rate per 100 000 Population, 1977

Personnes blessées, taux pour 100 000 habitants, 1977



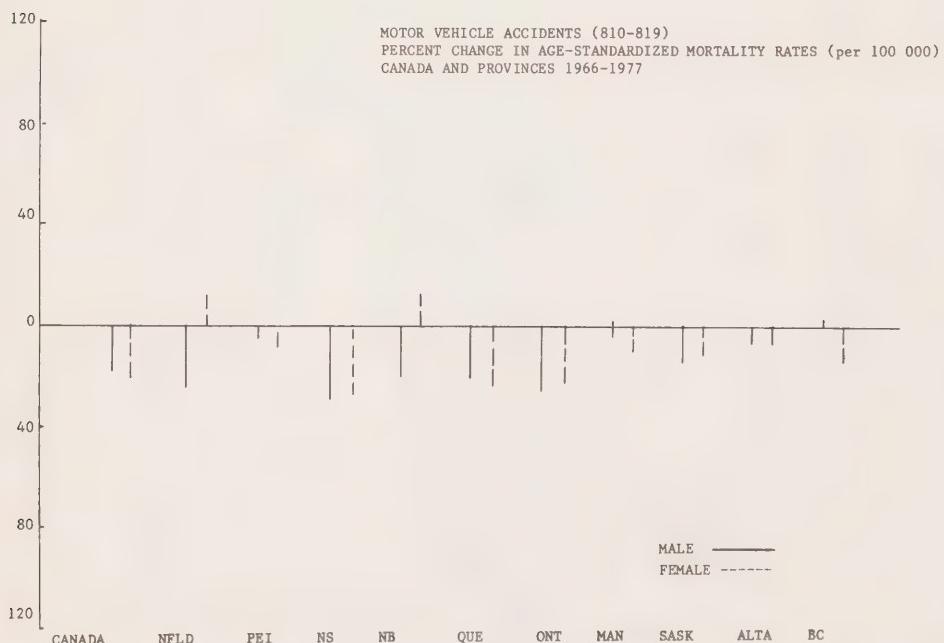
8.10 & 8.11 Crude rates per 100 000 population by provinces showed in 1977 a different pattern for killed in comparison with injured persons. While rates for killed were higher in the Atlantic and Prairies provinces, those for injuries were higher in Ontario, Manitoba, B.C., and the Yukon. Age standardized mortality rates showed the same trend.

8.12

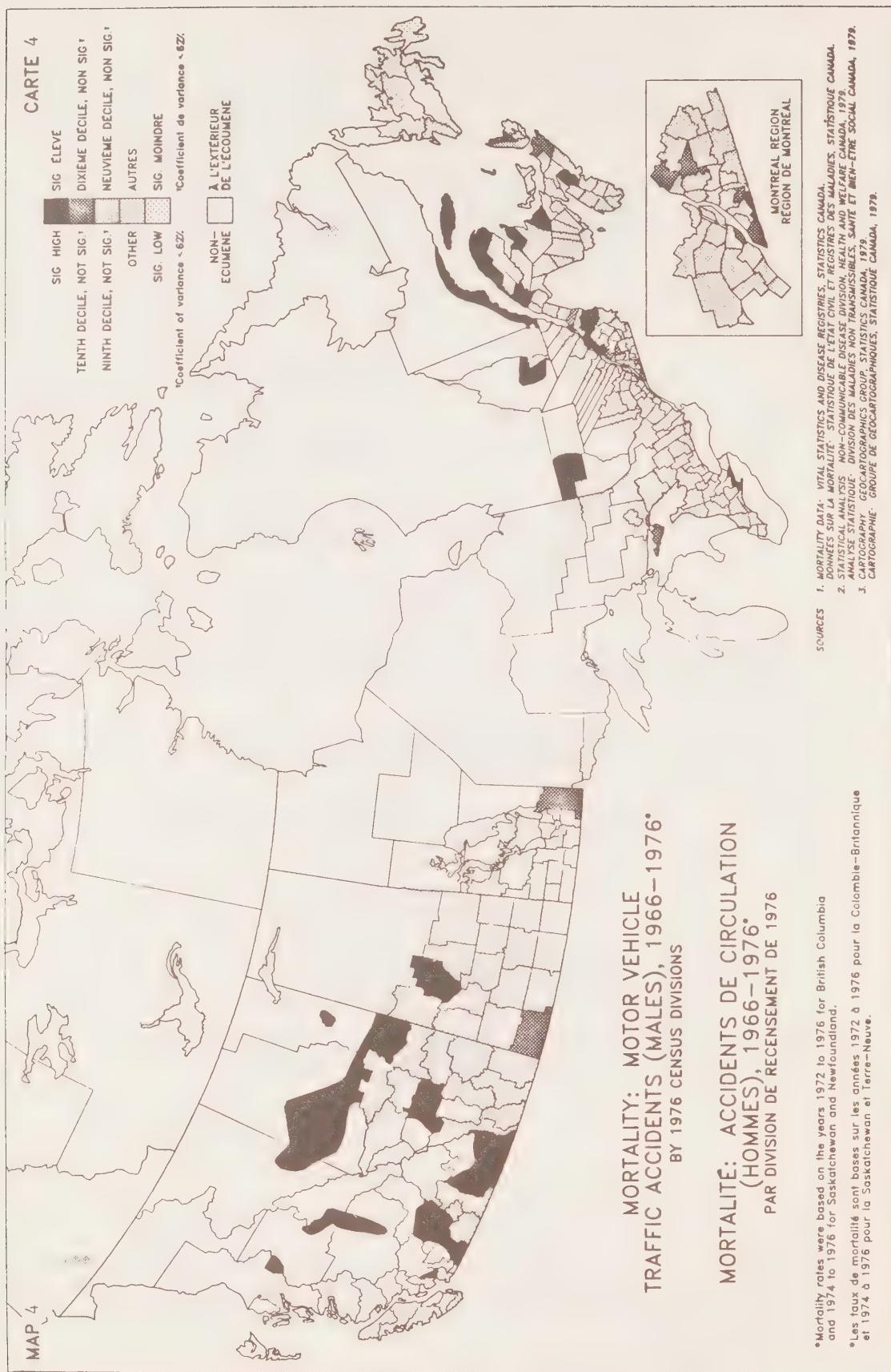
MOTOR VEHICLE TRAFFIC ACCIDENTS (810-819) - CANADA AND PROVINCES - 1966-1977  
Age Standardized Mortality Rates (All Ages) and Percent Change

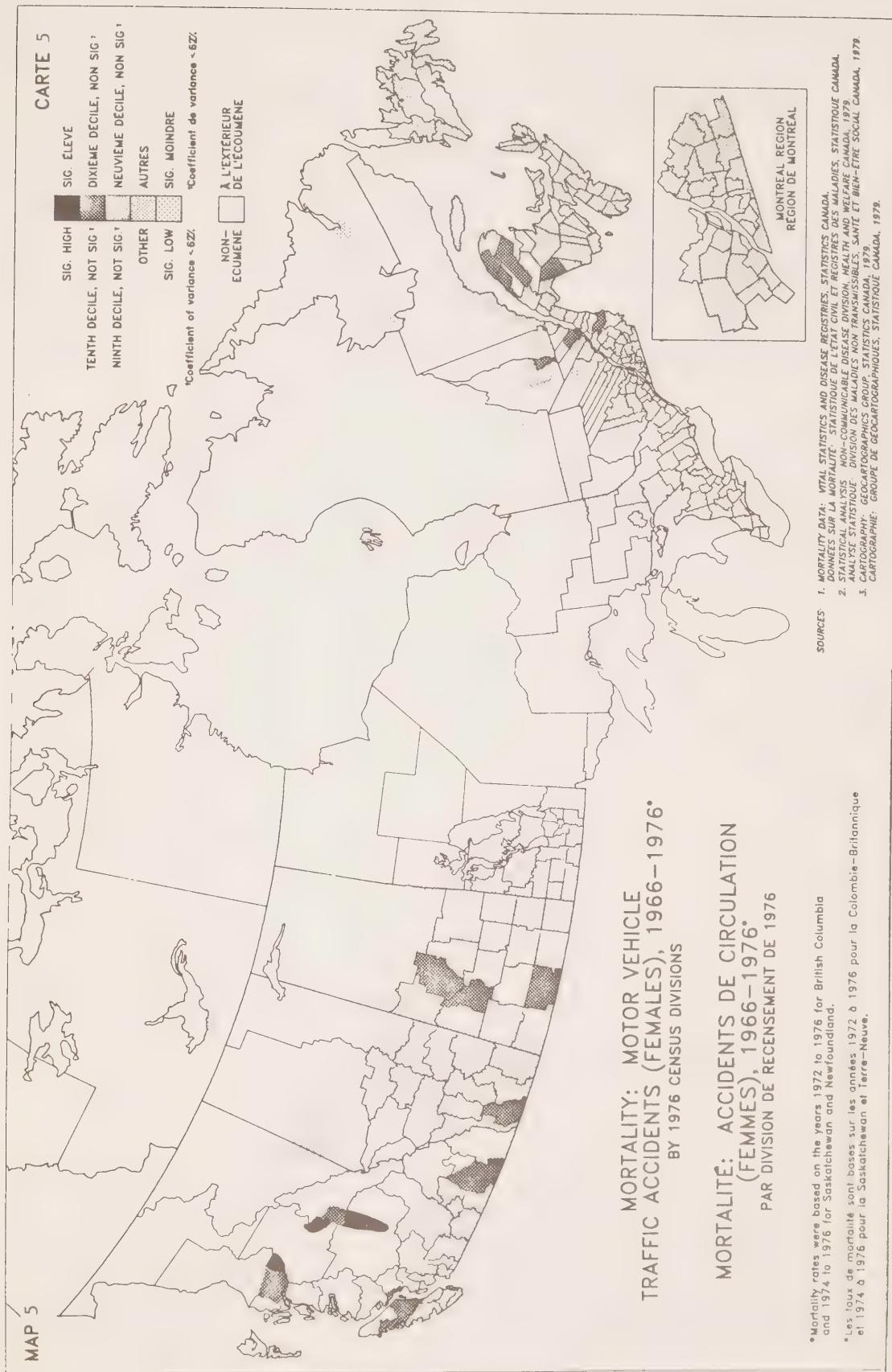
	Males	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Year	1966	41.0	32.9	51.0	46.8	62.3	47.2	35.0	32.7	41.5	43.1	39.4
	1967	39.7	28.4	38.3	52.3	53.9	42.7	35.6	30.8	44.9	45.5	38.0
	1968	38.7	21.1	65.6	49.4	54.5	43.2	33.3	32.9	43.6	40.7	38.6
	1969	39.9	28.3	62.5	51.7	50.2	47.9	33.7	28.7	37.5	41.6	37.8
	1970	26.0	20.4	43.8	43.4	45.7	45.2	29.7	24.8	34.1	36.2	37.4
	1971	37.4	24.0	35.3	44.5	51.2	44.1	32.3	25.0	33.3	40.6	38.6
	1972	42.0	29.9	63.9	44.7	52.8	50.7	36.2	29.1	40.6	40.9	43.5
	1973	41.5	26.8	38.6	52.0	57.5	48.0	34.2	30.5	36.6	46.1	47.1
	1974	39.6	35.5	56.1	43.6	49.6	46.2	29.6	30.3	44.3	47.7	49.4
	1975	35.8	24.1	53.9	42.0	47.2	39.9	29.5	27.6	35.6	39.3	43.7
	1976	31.2	18.9	34.5	33.7	45.2	32.8	25.6	31.6	40.0	39.6	34.9
	1977	31.1	20.3	59.4	31.5	43.9	33.7	23.6	33.9	38.0	43.8	36.6
MEAN	1966-67	39.8	27.5	51.6	50.1	56.9	44.4	34.6	32.2	43.3	43.1	38.6
MEAN	1975-77	32.7	21.1	49.3	35.7	45.4	35.5	26.2	31.1	37.9	40.9	38.4
% CHANGE		-17.8	-23.1	-4.6	-28.6	-20.1	-20.0	-24.2	-3.4	-12.5	-5.1	-0.6
	Females											
Year	1966	14.2	5.3	15.2	14.4	14.4	16.1	12.6	10.9	16.2	13.9	16.6
	1967	14.9	11.2	25.7	15.5	20.3	15.8	13.1	12.9	18.5	14.5	17.0
	1968	14.3	8.4	12.1	15.5	14.2	15.9	12.1	10.5	15.7	16.8	17.2
	1969	14.1	9.7	10.8	14.2	14.8	16.2	12.3	10.7	13.2	14.5	15.0
	1970	13.1	9.7	11.8	14.1	18.3	16.1	11.0	9.2	9.7	13.7	12.9
	1971	14.6	12.9	9.1	13.3	13.3	16.9	12.6	10.2	15.5	15.7	17.0
	1972	14.7	14.2	24.0	16.2	15.1	19.0	12.1	7.6	13.2	13.2	15.8
	1973	15.9	11.3	26.1	13.0	21.5	17.5	13.4	14.6	18.8	17.1	18.2
	1974	14.8	11.3	10.2	19.4	21.8	15.3	11.9	12.3	17.9	16.0	19.5
	1975	13.6	12.2	18.3	13.3	16.7	14.6	11.7	13.1	15.0	14.1	16.0
	1976	11.6	8.3	12.6	11.8	20.5	12.0	9.0	9.0	17.2	15.6	13.5
	1977	11.5	6.7	19.4	9.0	17.7	11.2	8.9	9.3	15.0	17.4	16.0
MEAN	1966-67	14.5	8.3	17.7	15.1	16.3	15.9	12.6	11.4	16.8	15.1	16.9
MEAN	1975-77	12.2	9.0	16.8	11.4	18.3	12.6	9.9	10.5	15.7	15.7	15.2
% CHANGE		-15.5	+9.1	-5.1	-24.7	+12.3	-20.8	-21.6	-8.2	-6.3	+4.0	-10.4

SOURCE: Statistics Canada



- 8.12 Motor vehicle traffic accident mortality has decreased in varying degrees for males in all provinces. Female rates have also decreased with the exception of Newfoundland and Alberta, where a slight increase has occurred.





MAPS 4 & 5 A marked male predominance is apparent in the distribution of MNTA mortality. Census Divisions with significantly higher mortality are concentrated in the eastern and western provinces. This is also apparent for females to a lesser degree.

Person

8.13

DEATHS ATTRIBUTED TO MOTOR VEHICLE TRAFFIC ACCIDENTS  
BY AGE, SEX AND TYPE OF ACCIDENT  
CANADA 1977

Type of Accident	Sex	Age Group		1-4	5-14	15-34	35-64	65+	Not Stated	Total
		M	F	-	2	28	22	4		
Collision with Train		M	F	-	2	8	10	2	-	56 21
Collision with another Moving Vehicle		M	F	17 14	50 39	807 216	315 207	106 61	1 5	1 296 542
Collision with Other Vehicle		M	F	2 -	49 16	19 5	7 1	6 3	-	83 25
Collision with Pedestrian		M	F	38 22	104 66	132 61	130 88	115 78	-	519 315
Other Involving Collision		M	F	- 1	2 2	129 19	26 2	8 -	-	165 24
Loss of Control		M	F	6 4	11 10	786 169	200 58	40 22	3 1	1 046 264
Unspecified and Other		M	F	18 13	36 18	352 99	145 52	51 27	-	602 209
Sub-Total Male				81	254	2 253	845	330	4	3 767
Sub-Total Female				54	152	577	418	193	6	1 400
Sex Ratio				1.5	1.6	3.9	2.0	1.7	-	2.6
Total				135	406	2 830	1 263	523	10	5 167

SOURCE: Canada Safety Council  
 Accident Fatalities 1977

8.13 PERSON AGE & SEX

65% of motor vehicle accident deaths occur under age 34 years (54% in the 15-34 years age group). While a male predominance is evident in every age group, the highest sex ratio is observed in the 15-34 age group. Collision with another motor vehicle accounted for 35.5% of deaths; 25.3% were due to loss of control of the vehicle, while collision with a pedestrian accounted for another 16%. (Altogether these 3 causes amount to 76.9% of all deaths.)

8.14

MOTOR VEHICLE TRAFFIC ACCIDENTS 810-819  
CANADA 1966-1977

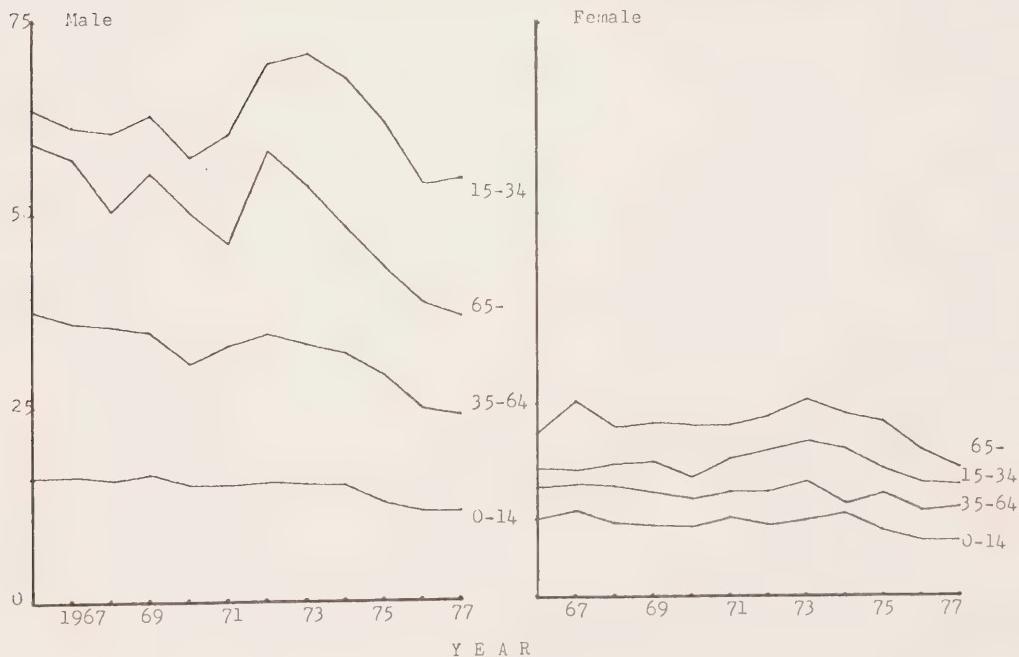
Age Standardized Mortality Rates and Percent Change for Selected Age Groups

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	41.0	15.7	63.4	37.4	59.1	14.2	10.1	16.6	14.0	21.1
1967	39.7	15.9	61.1	35.9	57.0	14.9	11.2	16.3	14.4	25.4
1968	38.7	15.3	60.5	35.5	50.3	14.3	9.4	17.2	14.1	21.8
1969	39.9	16.2	62.9	34.7	55.3	14.1	9.0	17.5	13.2	22.4
1970	36.0	14.7	57.3	30.7	50.2	13.1	8.9	15.3	12.4	22.0
1971	37.4	14.8	60.5	33.1	46.1	14.6	10.2	17.9	13.4	22.2
1972	42.0	15.2	69.7	34.7	58.3	14.7	9.1	19.0	13.4	23.4
1973	41.5	14.8	71.0	33.2	53.8	15.9	9.9	20.1	14.8	25.5
1974	39.6	14.7	67.7	32.1	48.2	14.8	10.8	19.0	11.8	23.6
1975	35.8	12.3	61.9	29.2	43.1	13.6	8.5	16.4	13.2	22.5
1976	31.2	11.3	54.0	24.8	38.5	11.6	7.1	14.6	11.0	18.8
1977	31.1	11.3	54.8	23.9	36.8	11.5	7.2	14.3	11.5	16.5
MEAN 1966-68	39.8	15.6	61.7	36.2	55.5	14.5	10.2	16.7	14.2	22.2
MEAN 1975-77	32.7	11.6	56.9	26.0	39.5	12.9	7.6	15.1	11.9	19.3
% CHANGE	-17.8	-25.4	-7.7	-28.3	-28.7	-15.5	-25.4	-9.6	-15.9	-15.3

SOURCE: Statistics Canada

MOTOR VEHICLE TRAFFIC ACCIDENTS (810-819)  
CANADA 1966-1967

Age Standardized Mortality Rates (per 100 000) for Selected Age Groups



- 8.14 MVTA age standardized mortality rates are declining in all age groups in both sexes. Since 1966 the age group 15-34 (both sexes) has shown the smallest decline. Males over 35 years have experienced a much greater decline than females in the same age group.

8.15

PERSONS KILLED AND INJURED IN TRAFFIC ACCIDENTS  
BY TYPE OF ROAD USER  
CANADA 1976

	FATAL		NON-FATAL	
	No	%	No	%
Drivers	2 205	41.6	86 794	43.5
Passengers	1 574	29.7	73 230	36.7
Pedestrians	874	16.4	18 232	9.2
Bicyclists	156	2.9	9 068	4.0
Motorcyclists				
Drivers	270	5.1	9 060	4.5
Passenger	22	0.4	1 071	0.5
Other	206	3.9	3 141	1.6
Total	5 307	100.0	200 596	100.0

SOURCE: Statistics Canada  
Transport and Communications Division

8.15 The vast majority of road users involved in fatal and non-fatal accidents are automobile drivers and passengers. Pedestrians were killed or injured in 16.4% and 9.2% of accidents respectively in 1976.

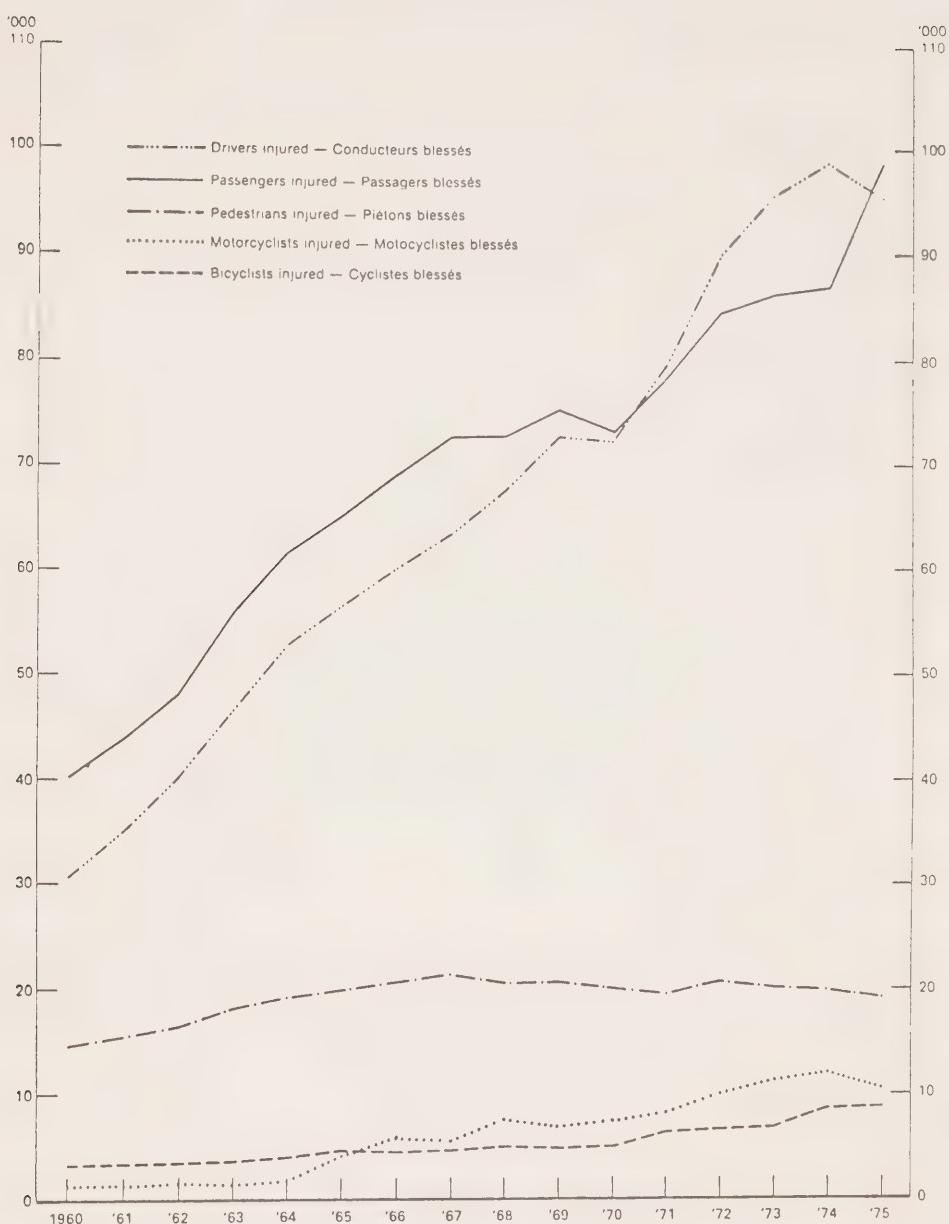
8.16

Drivers, Passengers, Pedestrians, Bicyclists, Motorcyclists Killed, 1960-1975  
Conducteurs, passagers, piétons, cyclistes motocyclistes tués, 1960-1975



8.17

Drivers, Passengers, Pedestrians, Bicyclists, Motorcyclists Injured 1960-1975  
Conducteurs, passagers, piétons, cyclistes, motocyclistes blessés, 1960-1975



SOURCE: Statistics Canada

8.16 & 8.17 Between 1960 and 1975 the number of bicyclists and motorcyclists killed and injured were reduced in comparison with those of pedestrians, passengers and drivers. Nevertheless, while the number of pedestrians and passengers killed has decreased since 1973, deaths among drivers remained static (at least until 1975). It is also interesting to note that injured passengers continue to increase, while injured drivers are declining.

8.18

FATALLY INJURED DRIVERS BY TYPE OF VEHICLE INVOLVED  
SEVEN PROVINCE AGGREGATES<sup>(1)</sup>  
CANADA 1976

VEHICLE TYPE	# OF DRIVER FATALS	% OF TOTAL
Automobile	1 119	61.8
Truck/Van	291	16.1
Tractor Trailer	32	1.8
Motorcycle	153	8.4
Moped	9	0.5
Snowmobile	52	2.9
Bicycle	74	4.1
Farm Tractor <sup>1</sup>	32	1.8
Other Vehicles <sup>2</sup>	49	2.7
TOTAL	1 811	

<sup>1</sup>Includes some off-highway collisions

<sup>2</sup>Includes the category "vehicle type not recorded"

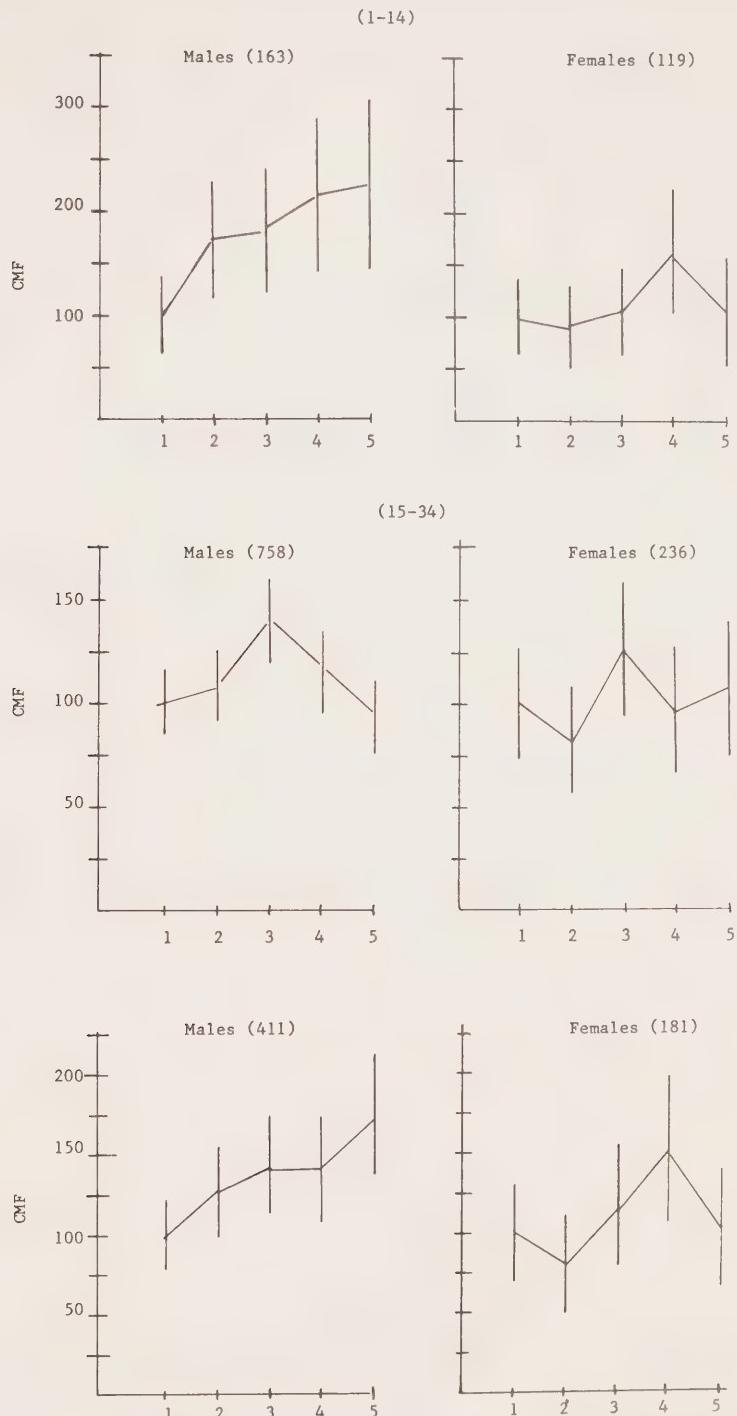
SOURCE: Traffic Injury Research Foundation  
Analysis of Fatal Traffic Crashes, 1976

(1) P.E.I., N.B., Ont., Man., Alta and B.C.

- 8.18 Among driver fatalities, 61.8% involved automobiles, 16.7% trucks or vans and 8.4% motorcycles. It is remarkable to note that tractor-trailer drivers are very seldom involved in fatalities.

8.19      MOTOR VEHICLE TRAFFIC ACCIDENTS - DEATHS BY LEVEL OF INCOME  
                CANADA 1971

Age Standardized Mortality Rates for 21 Urban Census Divisions



8.19 Mortality differentials by levels of income are more marked among males than females, particularly in the age groups below 15 and over 65.

Risk Factors

8.20

NUMBER AND PERCENT OF MOTOR VEHICLE ACCIDENTS  
BY TYPE AND LIGHT CONDITIONS  
CANADA 1976

Light Condition \ Type	Fatal		Non-Fatal		Property Damage Only		Total	
	No.	%	No.	%	No.	%	No.	%
Daylight	1 988	44.4	70 938	51.3	257 465	51.8	329 851	57.7
Dawn	102	2.3	2 020	1.5	7 760	1.6	9 882	1.5
Dusk	201	4.5	5 436	3.9	18 667	3.7	24 304	3.8
Dark	2 071	46.2	41 979	30.3	135 532	27.2	179 582	28.1
Not Stated	115	2.6	17 961	13.0	77 393	15.5	98 469	14.9
Total	4 477	100.0	137 794	100.0	496 817	100.0	639 088	100.0

- 8.20 In 1976 out of a total of 543 592 accidents for which the light conditions were stated, 60.6% and 33%, occurred in daylight or in the dark respectively. These proportions were similar for accidents causing non-fatal injuries and property damage, while among fatal accidents 47.4% occurred in the dark and only 45% in daylight. (These figures seem to indicate that light conditions play a role in the occurrence of fatal accidents).

8.21

NUMBER AND PERCENT OF MOTOR VEHICLE ACCIDENTS  
BY TYPE AND WEATHER CONDITIONS  
CANADA 1976

Type Weather Conditions	Fatal		Non-Fatal		Property Damage		Total	
	No.	%	No.	%	No.	%	No.	%
Clear	3 701	82.6	98 988	71.9	332 632	66.9	435 321	68.1
Cloudy								
Fog or Mist	128	2.9	1 853	1.3	5 816	1.2	7 797	1.2
Smoke or Dust								
Rain	381	8.5	12 404	9.0	43 221	8.8	56 207	8.8
Snow	216	4.8	8 268	6.0	45 229	9.1	53 713	8.4
Not Stated	51	1.2	16 281	11.8	69 718	14.0	86 050	13.5
Total	4 477	100.0	137 794	100.0	496 817	100.0	639 088	100.0

SOURCE: Statistics Canada  
 Transport and Communications Division

8.21 While 82.6 of fatal accidents occurred in clear or cloudy weather conditions, this proportion declined to approximately 70% for non-fatal and other accidents.

Thus, weather conditions do not seem to play such an important role as other factors in the genesis of fatal accidents.

8.22

NUMBER AND PERCENT OF MOTOR VEHICLE ACCIDENTS  
BY TYPE AND ROAD SURFACE  
CANADA 1976

Road Surface \ Type	Fatal		Non-Fatal		Property Damage Only		Total	
	No.	%	No.	%	No.	%	No.	%
Dry	2 871	64.2	70 550	51.3	197 916	40.1	271 337	42.4
Wet	768	17.1	24 437	17.8	86 841	17.4	112 046	17.5
Muddy	10	0.2	331	0.2	1 794	0.3	2 135	0.4
Snowy	238	5.7	7 948	5.8	49 431	9.9	57 617	9.0
Icy	355	7.9	10 714	7.7	64 582	3.0	75 651	11.8
Loose Sand or Gravel	34	0.7	888	0.6	2 433	0.4	3 355	0.5
Not Stated	201	4.5	22 926	16.6	93 820	18.9	116 947	18.4
Total	4 477	100.0	137 794	100.0	496 817	100.0	639 088	100.0

8.23

NUMBER AND PERCENT OF MOTOR VEHICLE ACCIDENTS  
BY TYPE AND ROAD CONDITION  
CANADA 1976

Road Condition \ Type	Fatal		Non-Fatal		Property Damage Only		Total	
	No.	%	No.	%	No.	%	No.	%
Good	3 966	88.6	101 093	73.3	350 580	70.6	455 639	71.3
Defective	72	1.6	1 611	1.2	5 949	1.2	7 632	1.2
Under Repair	13	0.3	533	0.4	1 755	0.3	2 301	0.4
Under Construction	23	0.5	775	0.6	2 329	0.4	3 127	0.5
Obstruction	389	0.3	145	0.1	664	0.2	824	0.1
Not Stated		8.7	33 636	24.4	135 540	27.3	169 565	26.5
Total	4 477	100.0	137 794	100.0	496 817	100.0	639 088	100.0

SOURCE: Statistics Canada  
Transport and Communications Division

8.22 & 8.23 Most accidents occur on dry road surfaces in good condition. The fact that both factors (dry surface and good condition of the road) were more frequently found in fatal than in non-fatal or other accidents, seems to indicate that other influences were more important in causation (e.g., alcohol consumption, risk-taking, speeding, etc.).

8.24

NUMBER AND PERCENT OF MOTOR VEHICLE ACCIDENTS  
BY TYPE AND CONDITION OF VEHICLE  
CANADA 1975

	FATAL		NON-FATAL		PROPERTY DAMAGE		TOTAL	
	Number	%	Number	%	Number	%	Number	%
Automobile	5 367	68.1	176 541	69.6	638 337	70.9	820 245	70.5
Truck	1 412	17.9	26 629	10.5	113 807	12.6	141 848	12.3
Bus	66	0.9	2 272	0.9	7 684	0.8	10 022	0.9
Motorcycle	403	5.1	10 034	4.0	2 690	0.4	13 127	1.1
Others	636	8.0	38 071	15.0	138 203	15.3	176 970	15.2
Sub-Total	7 884	100.0	253 547	100.0	900 781	100.0	1 162 212	100.0
Condition of vehicle								
Apparently Good	6 907	87.6	213 523	84.2	734 183	81.5	954 613	82.0
Other	977	12.4	40 024	15.8	166 598	18.5	207 599	18.0
Sub-Total	7 884	100.0	253 547	100.0	900 781	100.0	1 162 212	100.0

SOURCE: Statistics Canada

8.24 In both fatal and non-fatal accidents and property damage the automobile was involved most frequently (approximately 70%). The condition of the vehicle was apparently good in most cases.

ALCOHOL CONTENT OF BLOOD

8.25

BLOOD ALCOHOL CONTENT AMONG FATALLY INJURED DRIVERS  
BY VEHICLE TYPE  
SEVEN PROVINCE AGGREGATES<sup>(1)</sup>  
CANADA 1976

Drivers of	No. of Fatal	Minimum Percent of Victims	
		Positive <sup>(2)</sup>	Impaired <sup>(3)</sup>
Automobiles	1 119	47	38
Trucks/Vans	291	49	42
Motorcycles	153	40	29
Tractor Trailers	32	25	25
Snowmobiles	52	60	52

(1) P.E.I., N.B., Ont., Man., Sask., Alta. and B.C.

(2) greater than 10 mg %

(3) over 80 mg %

SOURCE: Traffic Injury Research Foundation of Canada  
Analysis of Fatal Traffic Crashes 1976

8.25 Automobile, truck and van drivers were the most frequently involved in fatalities and approximately 40% of them were found to be impaired or to have a high content of blood alcohol.

Snowmobile driver fatalities showed the highest proportion of impairment in relation to blood alcohol content, while tractor-trailer drivers exhibited the lowest figures. Motorcycle drivers were less frequently impaired and addition evidence not shown here indicates that loss of control of their vehicle is more likely to occur with lower blood alcohol levels.

8.26

AUTOMOBILE DRIVER FATALITIES  
AND BLOOD ALCOHOL CONTENT BY AGE  
SEVEN PROVINCE AGGREGATES<sup>(1)</sup>  
CANADA 1976

Age	No. of Drivers	% Tested	Minimum Percent	
			Positive <sup>(2)</sup>	Impaired <sup>(3)</sup>
<16	8	100	50	12
16-19	203	79	54	41
20-24	227	82	58	48
25-29	149	83	59	50
30-34	84	83	51	42
35-39	55	84	53	44
40-44	59	81	37	36
45-49	66	74	36	33
50-54	43	70	44	35
55-59	67	72	31	22
60-64	51	73	27	18
65+	102	68	18	13

(1) P.E.I., N.B., Ont., Man., Sask., Alta. and B.C.

(2) greater than 10 mg %

(3) over 80 mg %

SOURCE: Traffic Injury Research Foundation of Canada  
Analysis of Fatal Traffic Crashes 1976

8.26 Among automobile driver fatalities the frequency of alcoholic impairment is highest between the ages of 16 to 39 years (which is also the age group with highest frequency of fatalities and a greater male predominance).

8.27

MOTORCYCLE DRIVER FATALITIES  
AND BLOOD ALCOHOL CONTENT BY AGE  
SEVEN PROVINCE AGGREGATES(1)  
CANADA 1976

Age	No. of Victims	% Tested	Minimum Percent	
			Positive(2)	Impaired(3)
16	5	(2) 40%	0	0
16-19	46	(25) 54%	(11) 24%	(6) 13%
20-24	70	(54) 77%	(37) 53%	(30) 43%
25-39	26	(20) 77%	(12) 46%	(8) 31%
40+	6	(5) 83%	(2) 33%	(1) 17%

(1) P.E.I., N.B., Ont., Man., Sask., Alta. and B.C.

(2) greater than 10 mg %

(3) over 80 mg %

SOURCE: Traffic Injury Research Foundation of Canada  
Analysis of Fatal Traffic Crashes, 1976

8.27 Motorcycle drivers fatalities also show highest levels of impairment in the 16-39 age group, particularly in the 20-24 age group.

8.28

PEDESTRIAN FATALITIES AGED 14-64  
AND BLOOD ALCOHOL CONTENT  
SEVEN PROVINCE AGGREGATES<sup>(1)</sup>  
CANADA 1976

Age	No. of Victims	% Tested	Minimum Percent	
			Positive <sup>(2)</sup>	Impaired <sup>(3)</sup>
14-15	19	53	5	5
16-17	26	54	31	23
18-19	19	89	68	53
20-24	35	74	51	46
25-34	37	76	57	49
35-44	40	72	55	45
45-54	55	58	40	20
55-64	54	57	31	30
TOTALS	285	66	43	34

(1) P.E.I., N.S., Ont., Man., Sask., Alta. and B.C.

(2) greater than 10 mg %

(3) over 80 mg %

SOURCE: Traffic Injury Research Foundation of Canada  
Analysis of Fatal Traffic Crashes 1976

8.28 Pedestrian fatalities showed a similar pattern, with greatest frequency of alcoholic impairment between 16 and 44 (18 and 19-year-olds being most frequently impaired).

8.29

INJURIES INVOLVING ALL TYPES OF VEHICLES & PEDESTRIANS  
(BY BODY REGION AND SEVERITY)

211 (Plus) Injuries in 178 Cases

SEVERITY	1 & 2	3	4	5	TOTAL
HEAD	76	9	0	17	102
CHEST	7	2	0	6	15
ABD. & PELVIS	35	6	1	6	48
THIGH	23	1	0	2	26
LEG	13	3	0	1	17
UNKNOWN	0	0	0	3	3
MULTIPLE CASES	19	8	1	17	45

SOURCE: Traffic Injury Research Foundation  
Injuries in the Ottawa Region 1977

8.29 INJURIES

A study conducted in Ottawa in 1977 showed that most of the injuries suffered by drivers and passengers and pedestrians affected the head, abdomen, pelvis and thighs. The majority were not severe (1&2) except for head, chest, multiple injuries.

9. HOME ACCIDENTS AND DROWNING

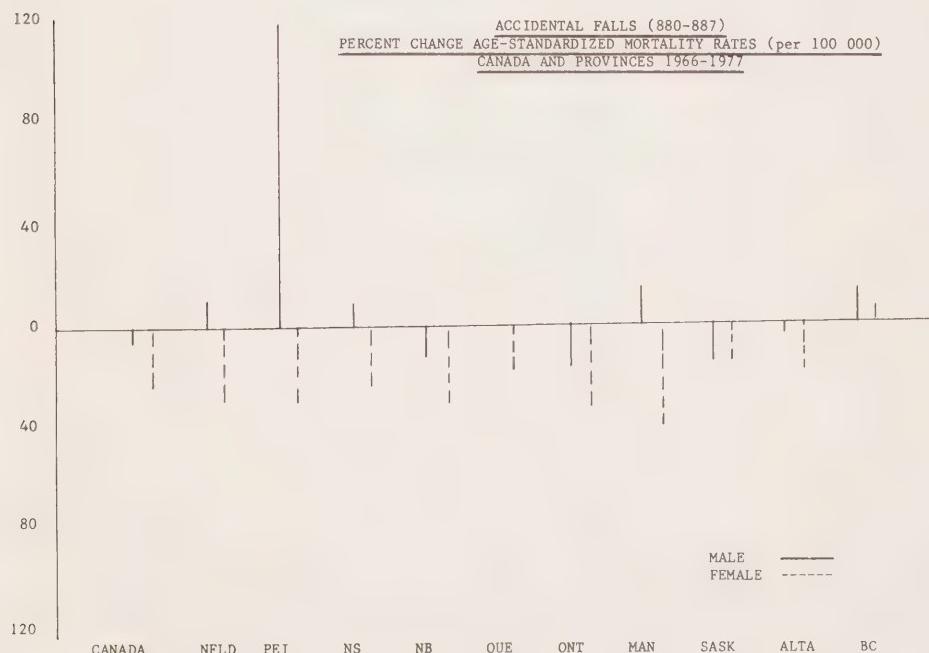


9.1

ACCIDENTAL FALLS (880-887) - CANADA AND PROVINCES - 1966-1977  
Age Standardized Mortality Rates (All Ages) and Percent Change

Males		Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Year	1966	9.9	4.2	4.5	6.6	10.2	8.8	11.1	8.1	7.0	11.0	12.1
	1967	9.5	7.3	6.8	6.5	6.0	10.3	10.7	8.6	8.7	10.4	8.7
	1968	9.6	5.9	2.7	9.2	9.9	9.6	10.6	7.1	9.4	8.7	11.1
	1969	9.4	5.9	3.1	5.3	10.8	9.9	9.8	9.1	6.9	9.0	11.6
	1970	8.5	4.5	10.6	6.3	6.7	8.4	9.3	8.0	3.6	10.9	9.5
	1971	9.5	7.3	7.1	8.0	5.8	10.8	9.5	7.4	6.4	10.5	11.5
	1972	9.2	5.4	1.6	4.3	7.3	10.9	9.5	9.8	5.3	11.8	9.4
	1973	10.1	10.1	12.3	7.7	8.5	9.9	10.5	9.7	6.8	9.3	13.8
	1974	9.3	4.1	7.0	10.6	6.7	10.1	9.0	7.5	5.2	9.0	13.3
	1975	9.6	4.6	6.7	6.8	9.7	10.0	9.2	9.2	5.6	10.5	13.8
	1976	9.0	4.2	12.5	8.8	5.4	9.6	9.2	7.4	7.2	10.0	10.5
	1977	8.9	10.2	11.4	8.1	8.1	8.8	8.8	10.0	8.9	8.4	11.1
MEAN	1966-67	9.7	5.8	4.7	7.4	8.7	9.6	10.8	7.9	8.4	10.0	10.6
MEAN	1975-77	9.2	6.3	10.2	7.9	7.7	9.5	9.0	8.9	7.2	9.6	11.8
% CHANGE		-5.2	+8.8	+116.9	+6.6	-11.1	-1.0	-16.1	+11.6	-13.4	-4.1	+11.0
Females												
Year	1966	7.5	8.0	4.0	7.5	7.3	7.4	8.4	6.3	5.8	6.7	7.2
	1967	7.8	10.7	8.0	8.0	4.9	7.1	8.5	7.7	6.3	9.0	7.1
	1968	7.2	8.6	0.0	4.5	9.5	7.0	8.0	5.4	5.2	8.1	7.2
	1969	6.4	3.6	1.7	6.3	6.3	6.8	6.5	5.3	6.4	7.5	6.4
	1970	6.3	5.2	6.8	6.2	4.2	7.0	6.1	6.1	6.0	8.8	5.9
	1971	6.4	5.9	2.1	4.8	5.7	7.9	6.2	4.6	4.5	7.1	7.1
	1972	6.5	4.6	3.5	5.5	3.3	7.5	6.6	6.5	3.3	6.3	8.0
	1973	5.7	4.6	2.0	6.3	4.8	5.7	5.2	5.7	3.6	6.1	7.8
	1974	6.0	1.8	3.6	6.6	5.6	6.8	5.7	4.3	3.3	7.0	7.9
	1975	6.1	5.9	1.3	4.9	2.4	6.8	5.9	5.2	5.1	7.0	7.5
	1976	5.5	7.3	4.5	5.7	6.3	5.2	5.3	4.0	4.7	5.6	6.8
	1977	5.3	4.8	2.1	4.4	5.8	5.1	5.2	2.7	4.5	6.0	7.4
MEAN	1966-67	7.5	9.1	4.0	6.7	7.2	7.2	8.3	6.4	5.8	7.9	7.2
MEAN	1975-77	5.6	6.0	2.6	5.0	4.8	5.7	5.5	4.0	4.8	6.2	7.2
% CHANGE		-25.2	-33.8	-33.5	-24.7	-32.6	-20.7	-33.8	-38.3	-16.8	-21.3	+0.8

SOURCE: Statistics Canada



- 9.1 The decline in mortality rates due to falls has been more marked among females in whom rates have declined in all provinces except British Columbia. Male rates have decreased very modestly, and have even increased in Newfoundland, Nova Scotia, Manitoba and British Columbia.

9.2

ACCIDENTAL FALLS 880-887  
CANADA 1966-1977

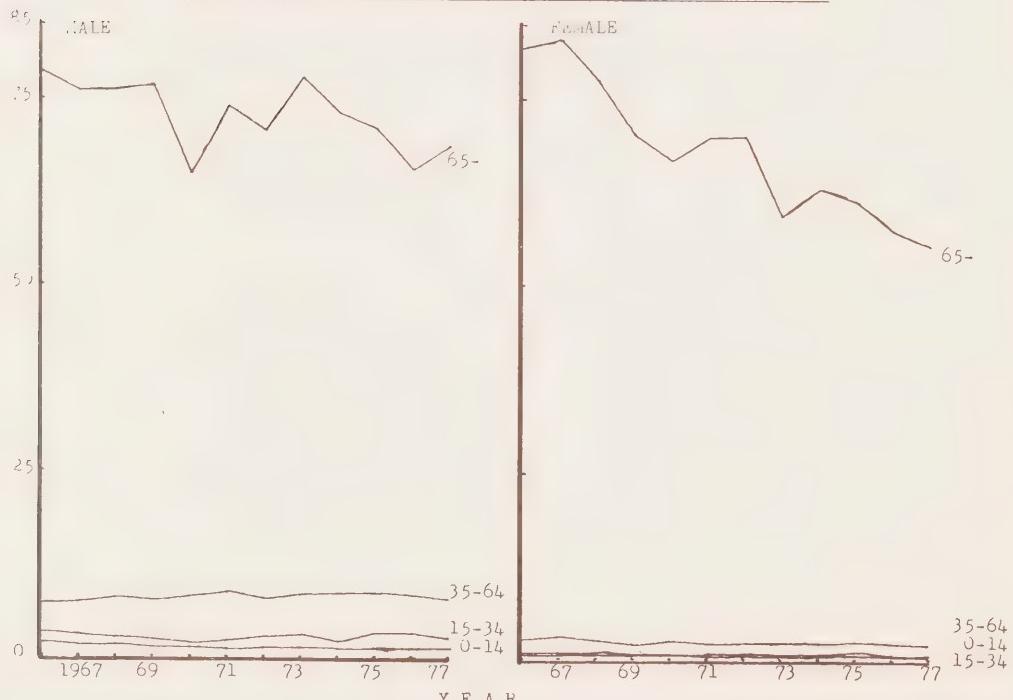
Age Standardized Mortality Rates and Percent Change

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	9.2	1.7	3.1	7.0	78.6	7.5	0.6	0.2	2.4	81.9
1967	9.5	1.3	2.7	7.2	76.0	7.8	0.6	0.3	2.9	83.2
1968	9.6	1.4	2.4	7.9	76.2	7.2	0.8	0.3	2.3	77.6
1969	9.4	1.1	2.2	7.5	77.0	6.4	0.4	0.3	1.8	70.4
1970	8.5	1.0	1.7	8.1	64.9	6.3	0.5	0.4	2.4	66.9
1971	9.5	0.8	2.1	8.6	74.1	6.4	0.6	0.2	1.9	70.1
1972	9.2	1.1	2.7	7.7	70.7	6.5	0.6	0.3	2.1	70.3
1973	10.1	1.2	2.9	8.4	77.9	5.7	0.4	0.4	2.2	59.4
1974	9.3	0.9	1.9	8.5	73.1	6.0	0.5	0.5	2.2	63.3
1975	9.6	1.1	3.1	8.6	71.0	6.1	1.0	0.5	2.5	61.5
1976	9.0	1.1	3.1	8.2	65.4	5.5	0.4	0.4	2.1	57.5
1977	8.9	1.0	2.4	7.7	68.7	5.3	0.5	0.3	1.9	55.5
MEAN 1966-68	9.7	1.5	2.7	7.4	76.9	7.5	0.7	0.3	2.5	80.9
MEAN 1975-77	9.2	1.1	2.9	8.1	68.4	5.6	0.6	0.4	2.2	58.2
% CHANGE	- 5.2	-25.6	-6.2	+10.5	-11.0	-25.2	-5.4	+38.7	-14.7	-28.0

SOURCE: Statistics Canada

ACCIDENTAL FALLS (880-887)  
CANADA 1966-1967

Age Standardized Mortality Rates (per 100 000) for Selected Age Groups



9.2 Deaths from accidental falls have declined in males and females over age 65, but more steeply in the latter. Death rates are increasing among males 15-64 years and among females 15-34 years of age.

DEATHS ATTRIBUTABLE TO ACCIDENTAL FALLS  
CANADA 1977

TYPE OF ACCIDENT	TOTAL	AGE											
		-1yr.	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Falls on or from stairs or steps	M 185 F 90	-	2	1	1	2	5	14	34	45	30	31	20
Falls on or from ladders or scaffolding	M 25 F 3	-	-	1	-	4	3	3	1	7	12	20	18
Falls from or out of building or other structure	M 61 F 10	-	2	-	-	14	9	6	7	8	1	1	2
Falls into holes or other opening surface	M 18 F -	-	1	2	-	4	3	3	-	1	-	-	1
Other falls from one level	M 99 F 58	3	1	3	3	15	8	5	4	13	12	14	18
Falls on same level from slipping, stumbling or tripping	M 32 F 46	-	1	-	-	-	-	1	1	-	8	10	11
Falls on same level from collision, pushing or shoving by or with other person	M - F 1	-	-	-	-	-	-	-	-	1	3	24	17
Other and unspecified falls	M 564 F 621	2	1	4	4	22	13	30	38	54	72	143	181
Total	M 984 F 829	5	8	11	8	61	41	62	88	127	131	208	234
Falls in water transport	M 5 F -	-	5	3	6	7	6	9	26	38	95	278	353
TOTAL	T 1818 M 989 F 829	8	13	14	14	68	49	72	116	165	226	486	587
						61	43	63	90	127	131	208	234
						6	7	6	9	26	38	95	278

SOURCE: Canada Safety Council  
Accident Fatalities 1977

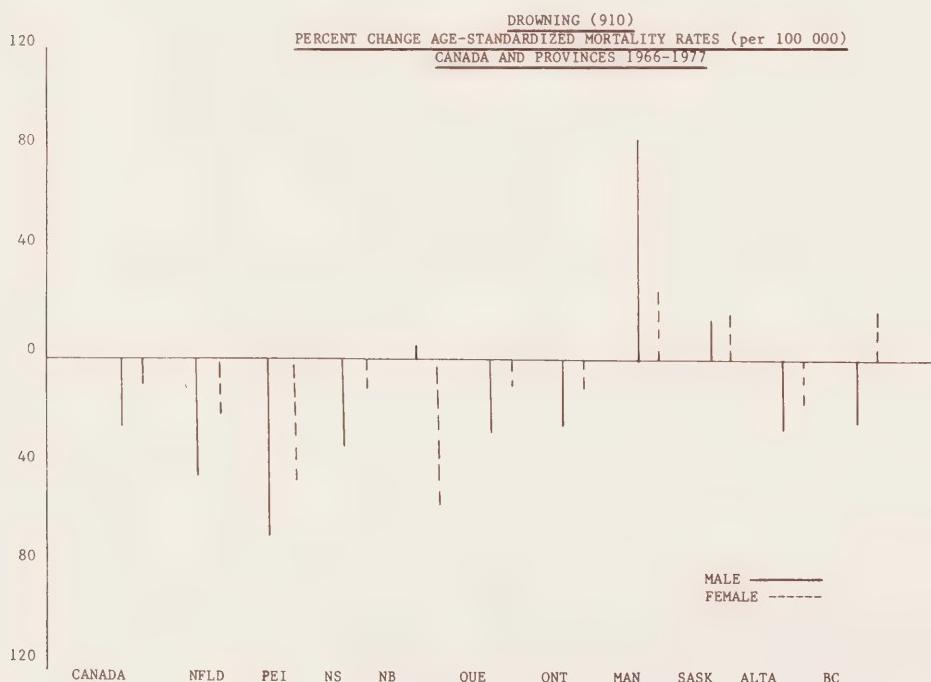
Even though there is a considerable number of unspecified falls, the majority of those specified affected older males and females (age 50+) in roughly similar proportion.

9.4

ACCIDENTAL DROWNING 910 - CANADA AND PROVINCES - 1966-1977  
Age Standardized Mortality Rates (All Ages) and Percent Change

Males	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	
Year	1966	7.3	16.4	10.7	9.4	7.2	10.1	5.1	3.9	4.5	3.7	7.5
	1967	7.0	12.8	16.4	8.9	7.1	8.7	5.1	6.2	3.4	6.4	8.2
	1968	6.4	12.2	17.7	5.5	7.0	7.8	4.9	5.4	4.9	4.1	6.9
	1969	7.0	9.6	7.6	8.9	7.3	9.6	4.7	8.1	6.3	5.0	5.8
	1970	6.9	13.8	7.7	9.7	3.6	8.9	4.6	6.5	4.5	5.3	9.0
	1971	5.7	6.2	10.8	7.0	5.7	6.1	4.4	4.7	6.5	6.0	7.8
	1972	5.7	6.2	5.4	8.4	8.1	6.5	4.5	7.1	4.2	5.1	5.4
	1973	6.3	10.4	15.5	7.7	5.9	7.0	5.2	6.2	6.0	5.1	6.8
	1974	5.3	7.2	6.8	5.9	5.0	5.6	4.0	5.3	5.3	4.5	8.7
	1975	5.9	9.1	1.9	6.4	6.3	8.0	4.0	7.5	5.2	4.0	6.5
	1976	5.2	9.5	3.4	6.2	11.8	5.7	3.8	5.2	5.8	4.3	5.5
	1977	4.3	4.2	9.5	3.3	4.0	5.4	3.4	16.0	3.7	2.1	5.1
MEAN	1966-67	6.9	13.8	14.9	7.9	7.1	8.9	5.0	5.2	4.3	4.7	7.6
MEAN	1975-77	5.1	7.6	4.9	5.3	7.4	6.4	3.7	9.6	4.9	3.5	5.7
% CHANGE		-26.1	-44.9	-66.7	-33.0	+3.4	-28.2	-25.2	+85.1	+14.8	-26.7	-24.3
Females												
Year	1966	1.4	2.0	1.3	0.9	2.9	1.4	1.3	1.5	0.5	1.1	1.2
	1967	1.3	1.6	2.0	1.7	1.4	1.4	1.1	2.1	1.4	1.0	1.6
	1968	1.3	1.5	3.9	0.4	2.6	1.5	1.1	0.4	1.3	0.8	1.7
	1969	1.4	1.2	1.6	1.5	2.6	1.5	1.1	1.7	0.6	1.5	1.6
	1970	1.1	1.0	0.0	1.2	0.9	1.4	0.8	0.8	1.6	0.5	2.0
	1971	1.2	2.7	0.0	2.5	1.2	1.1	0.9	2.0	0.7	1.8	1.2
	1972	1.0	0.5	0.0	1.2	0.8	1.1	0.8	1.5	0.4	0.9	1.5
	1973	1.3	1.1	1.6	1.5	1.2	1.6	1.3	1.0	2.9	0.4	0.9
	1974	1.0	1.6	1.6	1.3	0.3	0.9	0.8	1.4	1.1	0.6	1.6
	1975	1.4	1.0	0.0	0.7	1.1	1.6	1.2	1.1	1.5	1.6	2.2
	1976	1.1	0.7	0.0	1.2	0.5	1.1	0.9	2.4	1.9	0.6	1.6
	1977	1.0	2.3	3.5	0.8	1.4	1.0	1.0	1.5	0.4	0.1	1.6
MEAN	1966-67	1.3	1.7	2.4	1.0	2.3	1.4	1.2	1.3	1.1	1.0	1.5
MEAN	1975-77	1.2	1.3	1.1	0.9	1.0	1.2	1.0	1.7	1.3	0.8	1.8
% CHANGE		-11.5	-22.6	-50.8	-14.8	-55.9	-14.7	-12.2	+27.4	+15.9	-19.8	+19.6

SOURCE: Statistics Canada



9.4 Male mortality caused by drowning has decreased in all provinces except New Brunswick, while female rates have increased in Manitoba, Saskatchewan and British Columbia.

9.5

ACCIDENTAL DROWNING 910  
CANADA 1966-1977

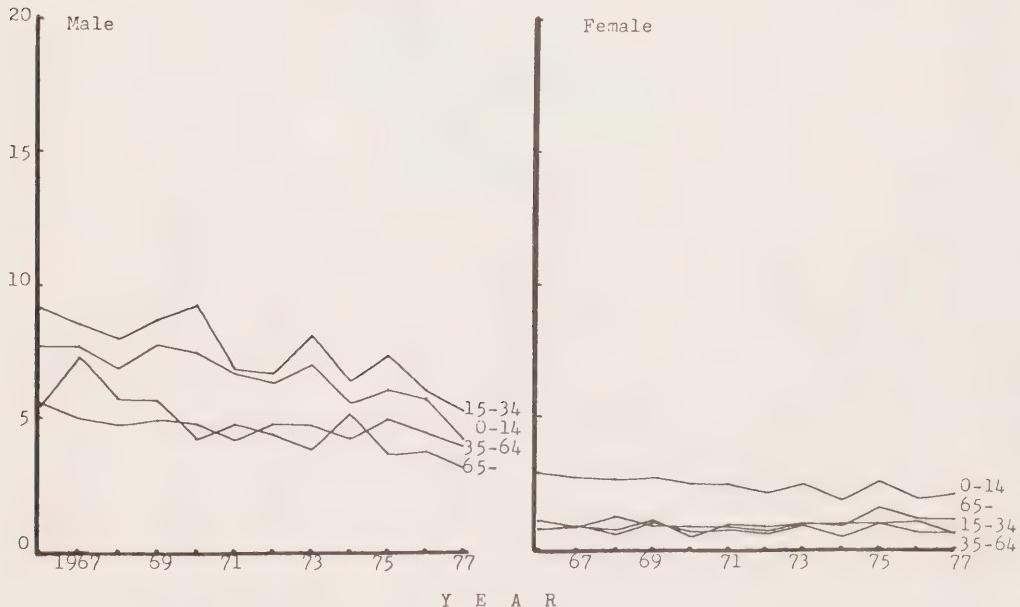
Age Standardized Mortality Rates and Percent Change

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	7.3	7.7	9.1	5.5	5.4	1.4	2.8	0.7	0.7	1.0
1967	7.0	7.6	8.5	4.9	7.3	1.3	2.6	0.8	0.8	0.8
1968	6.4	6.8	7.9	4.7	5.6	1.3	2.6	0.5	1.2	0.6
1969	7.0	7.7	8.7	4.9	5.6	1.4	2.6	0.9	0.8	1.0
1970	6.9	7.4	9.2	4.7	4.1	1.1	2.4	0.6	0.8	0.4
1971	5.7	6.6	6.7	4.1	4.7	1.2	2.4	0.7	0.7	0.9
1972	5.7	6.2	6.6	4.7	4.3	1.0	2.1	0.5	0.6	0.8
1973	6.3	7.0	8.0	4.6	3.7	1.3	2.4	0.8	0.9	0.9
1974	5.3	5.5	6.3	4.1	5.1	1.0	1.7	0.4	0.9	0.8
1975	5.9	6.0	7.3	4.9	3.5	1.4	2.5	0.9	0.9	1.5
1976	5.2	5.6	5.9	4.3	3.7	1.1	1.8	0.5	1.0	1.1
1977	4.3	4.1	5.1	3.8	3.0	1.0	2.0	0.6	0.5	1.1
MEAN 1966-68	6.9	4.4	8.5	5.0	6.1	1.3	2.7	0.7	0.9	2.8
MEAN 1975-77	5.1	5.2	6.1	4.3	3.4	1.2	2.1	0.7	0.8	1.2
% CHANGE	-26.1	-29.2	-27.9	-13.4	-43.7	-11.5	-19.9	-1.3	-8.6	+45.3

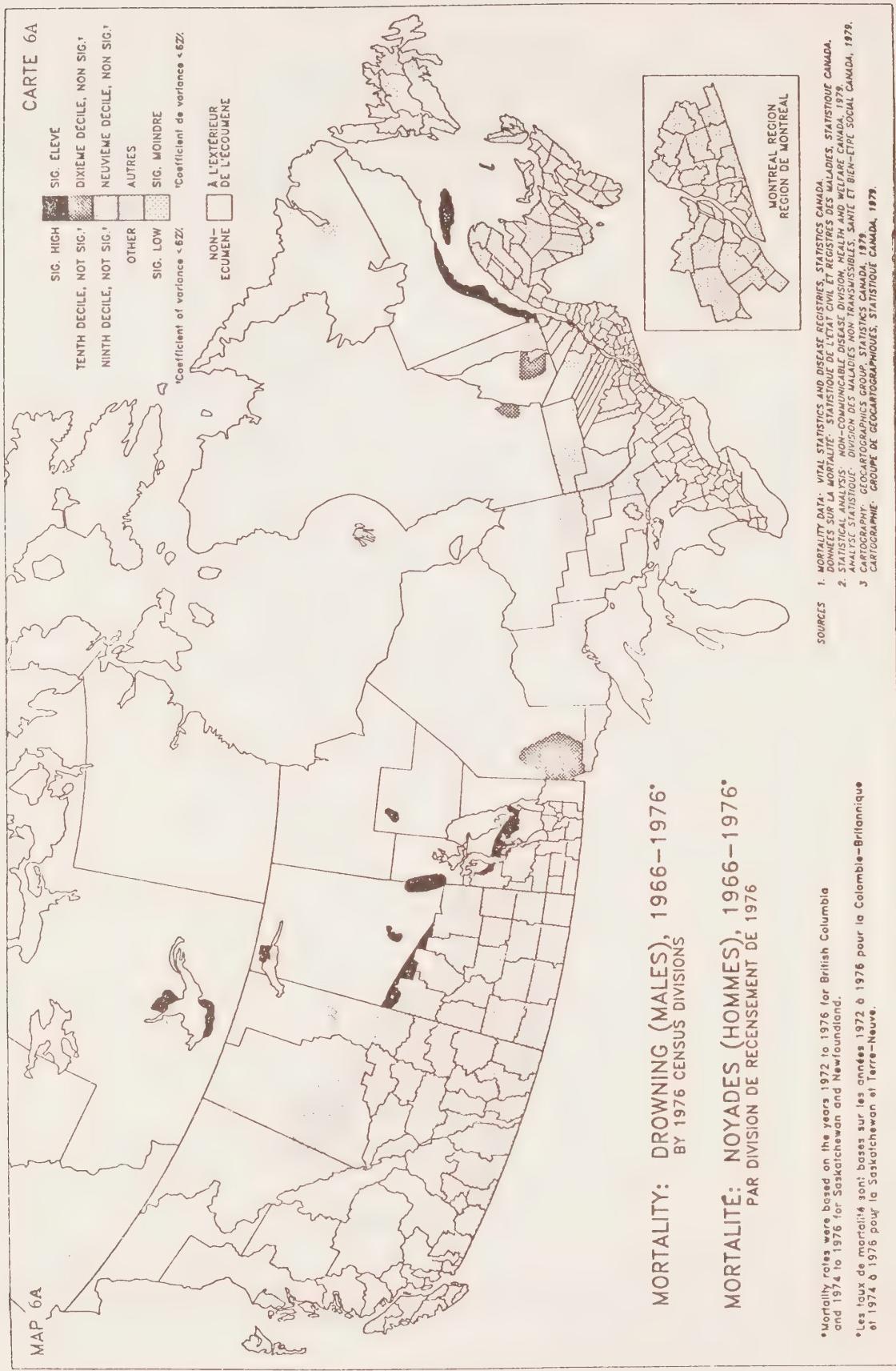
SOURCE: Statistics Canada

ACCIDENTAL DROWNING (910)  
CANADA 1966-1967

Age Standardized Mortality Rates (per 100 000)



- 9.5 A marked male predominance may be observed in mortality caused from drowning, but male rates are declining faster than those of females. Interestingly, the age group declining most is that of males over 65, while females in the same age group are the only ones experiencing an increase in their rates.



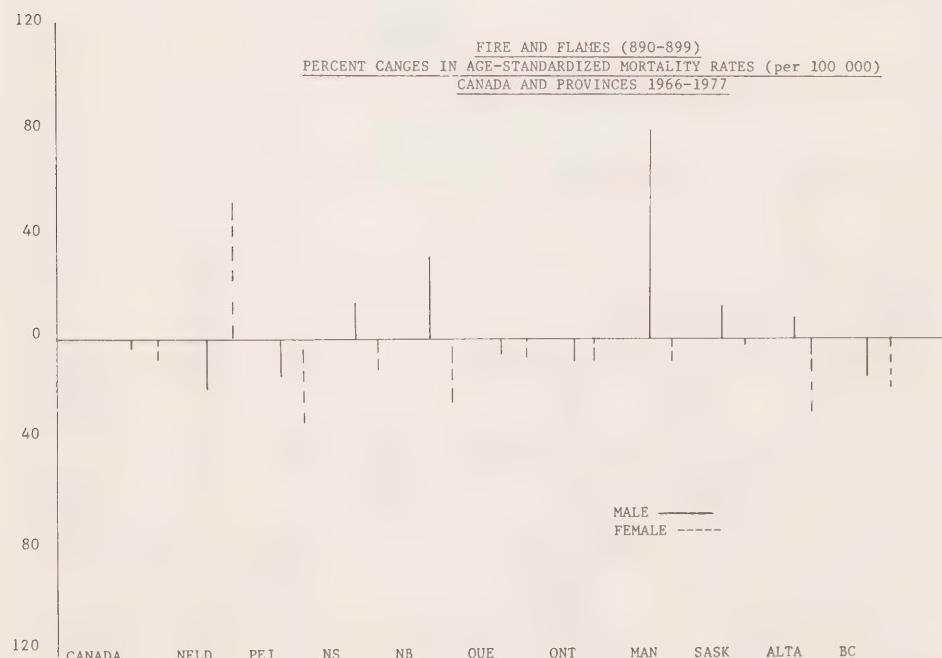
Map 6A Deaths due to drowning occurred at a higher rate in the Atlantic and Prairie provinces. The highest rates were observed in Manitoba, Saskatchewan and Quebec.

9.6

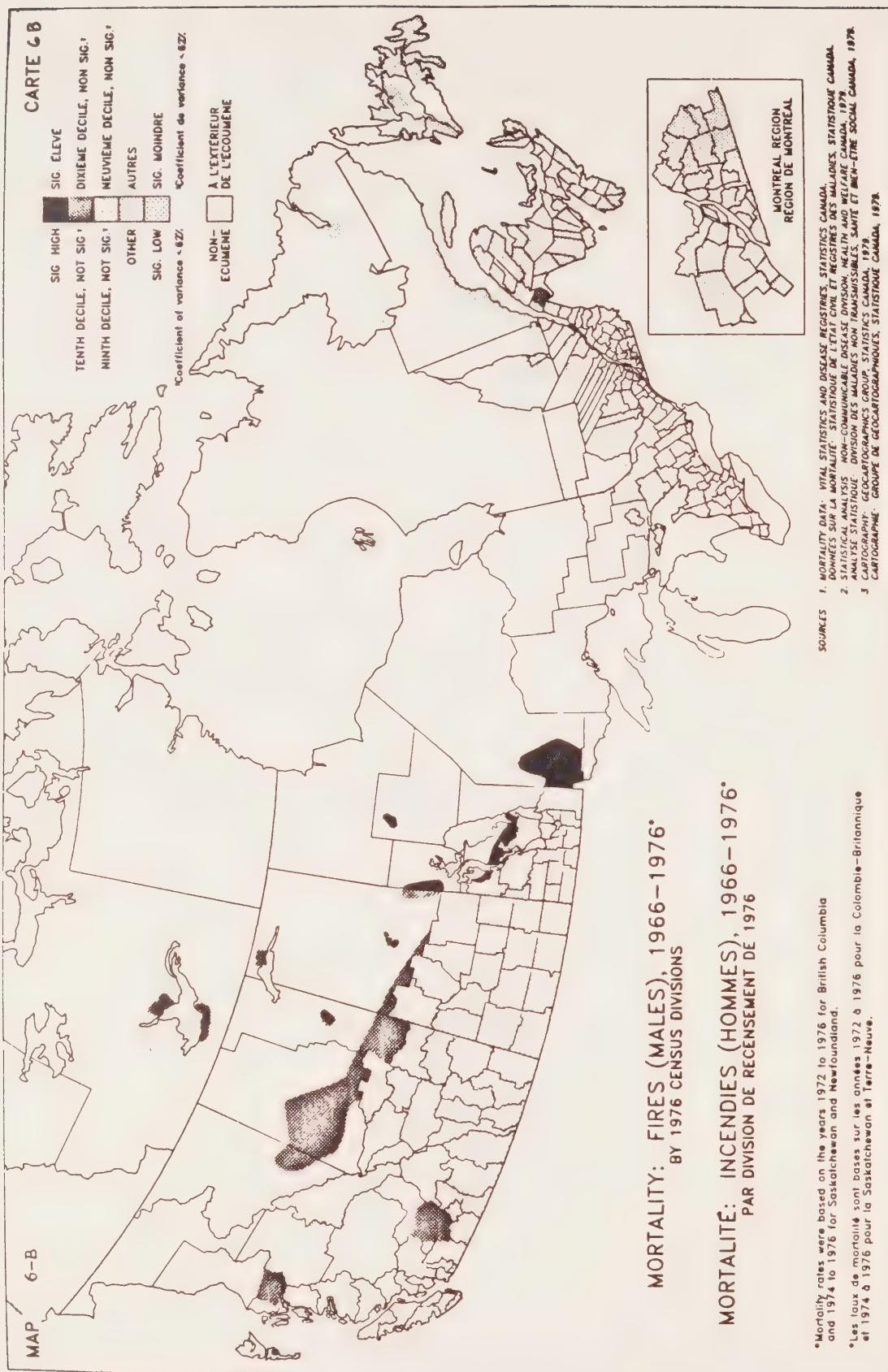
ACCIDENTS CAUSED BY FIRES AND FLAMES 890-899 - CANADA AND PROVINCES - 1966-1977  
Age Standardized Mortality Rates (All Ages) and Percent Change

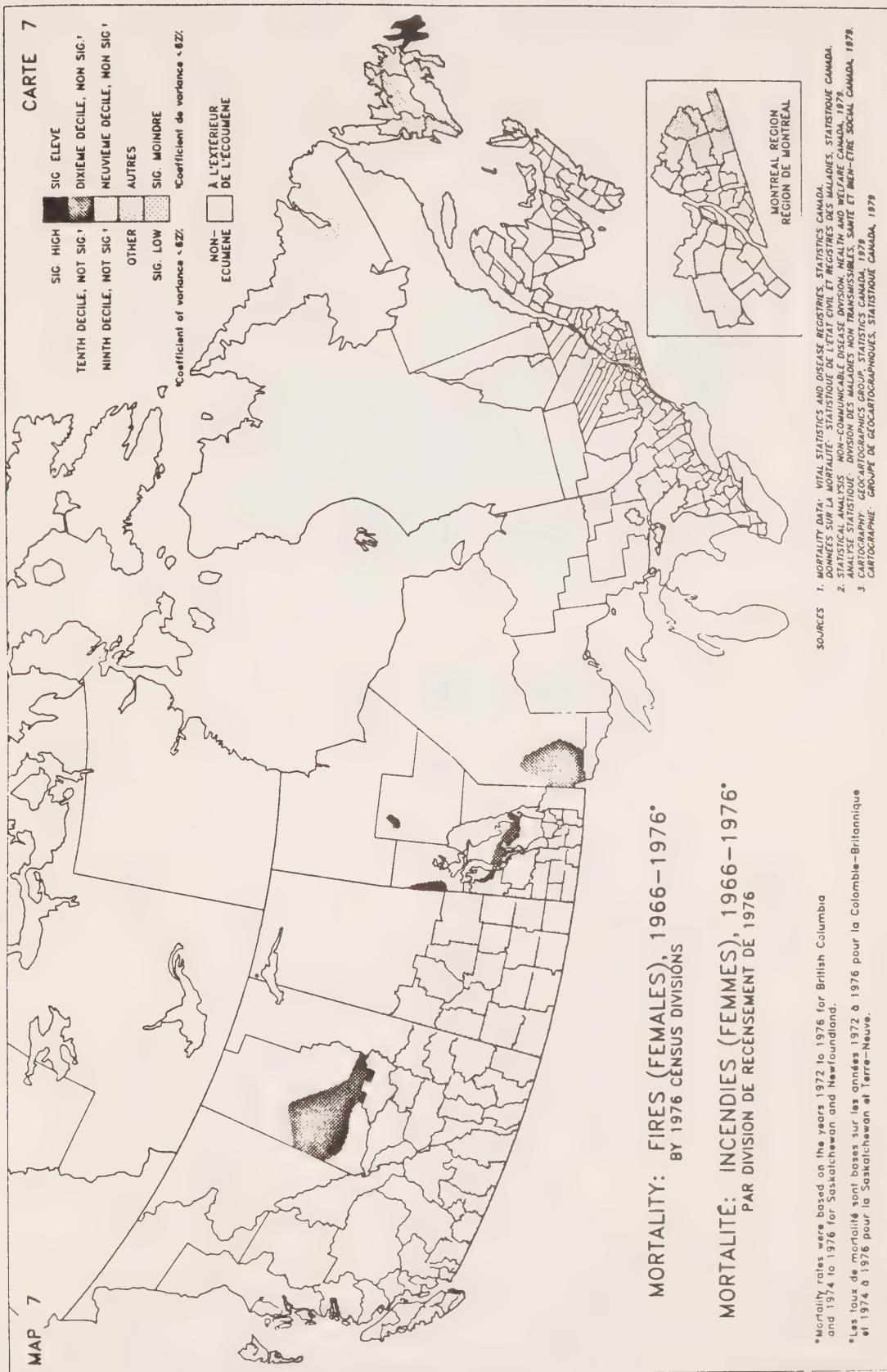
Males		Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Year	1966	4.1	3.2	3.2	4.9	6.2	4.0	3.8	5.3	3.7	3.3	4.6
	1967	4.3	5.2	4.5	5.3	6.0	3.3	3.6	6.3	4.7	4.7	6.8
	1968	4.1	7.1	15.2	3.9	5.5	3.1	4.0	4.1	2.7	4.1	4.7
	1969	4.1	2.2	6.5	6.4	3.8	4.8	3.0	5.2	5.8	2.0	5.6
	1970	3.4	2.9	1.6	4.3	5.4	2.9	3.4	3.0	3.1	3.7	4.2
	1971	3.4	3.5	14.6	4.3	3.1	2.6	3.1	4.1	3.3	3.3	5.6
	1972	4.4	6.0	6.2	6.1	5.3	3.9	3.8	5.7	6.7	4.1	4.5
	1973	4.2	4.7	13.3	8.3	2.7	3.8	3.5	3.6	5.3	3.8	5.7
	1974	4.5	6.8	13.3	6.2	6.9	3.6	3.7	7.6	5.3	3.4	5.8
	1975	4.0	4.1	13.3	4.5	6.2	3.6	3.6	4.2	3.3	3.8	5.2
	1976	4.2	3.7	3.5	7.0	6.4	3.5	3.7	6.1	5.0	4.1	4.9
	1977	3.8	4.6		4.6	10.7	2.7	3.0	17.9	4.1	5.0	3.7
MEAN	1966-67	4.1	5.1	7.6	4.7	5.9	3.5	3.8	5.2	3.7	4.0	5.4
MEAN	1975-77	4.0	4.2	6.6	5.4	7.7	3.3	3.4	9.4	4.2	4.3	4.6
% CHANGE		-3.3	-19.0	-13.1	+13.4	+30.9	-5.6	-8.8	+78.2	+12.3	+6.6	-14.2
<b>Females</b>												
Year	1966	2.3	2.1	2.9	2.8	6.4	1.8	2.3	3.1	1.7	1.7	2.0
	1967	2.6	2.9	2.9	4.9	2.9	2.0	2.7	3.8	1.9	2.2	3.3
	1968	2.4	3.2	11.2	2.5	3.9	2.0	2.0	1.7	2.4	3.0	3.3
	1969	1.9	0.0	0.0	3.1	1.8	2.5	1.5	3.5	1.9	1.0	1.7
	1970	2.5	2.7	3.8	2.3	3.0	2.1	2.1	3.1	1.4	2.8	4.0
	1971	2.5	3.1	3.4	3.9	1.3	2.4	2.3	4.4	1.2	2.2	2.8
	1972	2.4	5.3	5.1	3.3	3.0	2.1	2.1	3.5	1.9	1.6	3.3
	1973	2.3	3.1	3.8	2.6	2.0	2.3	1.8	2.3	3.6	1.2	3.4
	1974	2.7	2.7	3.4	2.8	4.6	2.2	2.4	4.9	4.4	2.4	2.4
	1975	2.3	3.6	5.1	3.5	5.0	1.9	2.1	1.7	1.8	1.5	3.3
	1976	2.3	8.6	1.7	3.0	3.2	1.8	2.6	2.3	1.5	1.5	1.6
	1977	2.0	0.9	3.9	2.3	2.0	1.8	1.8	4.1	2.6	2.0	2.2
MEAN	1966-67	2.4	2.8	5.7	3.4	4.4	1.9	2.3	2.9	2.0	2.3	2.8
MEAN	1975-77	2.2	4.4	3.6	2.9	3.4	1.8	2.2	2.7	2.0	1.7	2.4
% CHANGE		-8.8	+57.8	-36.7	-14.4	-22.9	-6.5	-6.2	-6.5	-0.4	-27.9	-16.3

SOURCE: Statistics Canada



9.6 Female mortality rates due to fire have increased in Newfoundland and decreased elsewhere, while male rates have increased in Nova Scotia, New Brunswick, Manitoba and Saskatchewan and Alberta.





SOURCES

1. MORTALITY DATA - VITAL STATISTICS AND DISEASE REGISTRIES, STATISTICS CANADA.
2. SOURCES SUR LA MORTALITE - STATISTIQUE DE L'ESTATE CIVILE ET REGISTRES DE MORTS, STATISTIQUE CANADA.
3. STATISTICAL ANALYSIS - NON-GOMMABLE DIVISION, DIVISION OF HEALTH AND WELFARE, CANADA, 1978.
4. CARTOGRAPHY - GEOGRAPHIC INFORMATION SYSTEMS GROUP, STATISTICS CANADA, 1978.
5. CARTOGRAPHIE - GROUPE DE GEOCARTOGRAPHIES, STATISTIQUE CANADA, 1979.

\*Mortality rates were based on the years 1972 to 1976 for British Columbia and 1974 to 1976 for Saskatchewan and Newfoundland.

**MORTALITÉ: INCENDIES (FEMMES), 1966-1976**  
PAR DIVISION DE RECENSEMENT DE 1976

: FIRES (FEMALES), 1966-1976  
BY 1976 CENSUS DIVISIONS

Maps 6 & 7 Death rates were higher for males in Western Ontario, Manitoba, Saskatchewan and Alberta. Female mortality followed the same pattern at a lower level (except in Newfoundland).

9.7

ACCIDENTS CAUSED BY FIRES AND FLAMES (890-899)  
CANADA 1966-1977

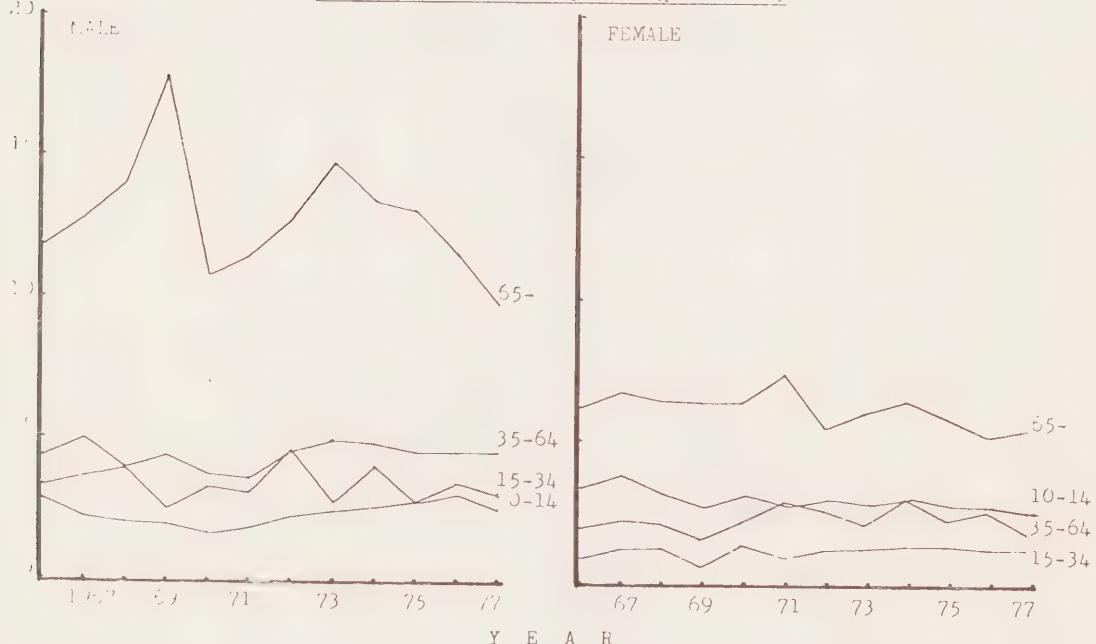
Age Standardized Mortality Rates and Percent Change

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	4.1	3.3	2.8	4.3	11.7	2.3	3.3	0.8	1.9	6.1
1967	4.3	3.6	2.1	4.9	12.7	2.6	3.7	1.1	2.1	6.7
1968	4.1	3.9	1.9	3.9	14.0	2.4	3.1	1.2	2.0	6.3
1969	4.1	2.4	1.9	4.3	17.8	1.9	2.6	0.5	1.5	6.3
1970	3.4	3.2	1.5	3.6	10.7	2.5	3.1	1.3	2.1	6.3
1971	3.4	3.0	1.8	3.5	11.4	2.5	2.7	0.8	2.8	7.3
1972	4.4	4.5	2.2	4.5	12.7	2.4	2.9	1.1	2.5	5.4
1973	4.2	2.6	2.4	4.8	14.7	2.3	2.7	1.2	2.0	6.0
1974	4.5	3.9	2.5	4.7	13.3	2.7	3.0	1.3	2.9	6.4
1975	4.0	2.6	2.7	4.4	13.0	2.3	2.7	1.3	2.2	5.7
1976	4.2	3.0	3.4	4.4	11.4	2.3	2.6	1.1	2.5	5.1
1977	3.8	2.4	2.9	4.4	9.7	2.0	2.4	1.2	1.7	5.4
MEAN 1966-68	4.1	3.6	2.3	4.4	12.8	2.4	3.4	1.0	2.0	6.4
MEAN 1975-77	4.0	2.7	3.0	4.4	11.3	2.2	2.6	1.2	2.1	5.4
% CHANGE	-3.3	-25.4	+32.0	+1.1	-11.4	-8.8	-22.8	+14.9	-5.8	-14.9

SOURCE: Statistics Canada

ACCIDENTS CAUSED BY FIRES AND FLAMES 890-899  
CANADA 1966-1967

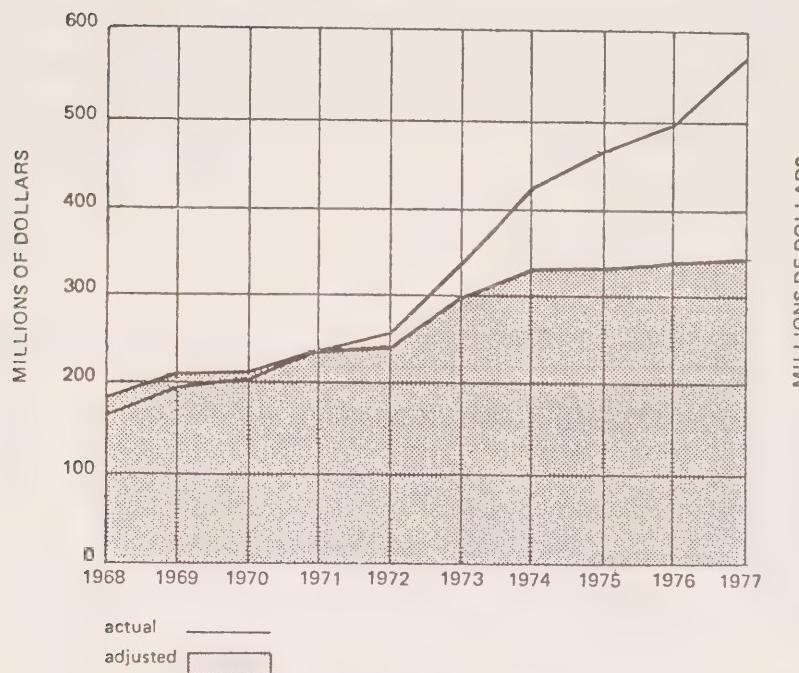
Age Standardized Mortality Rates (per 100 000)



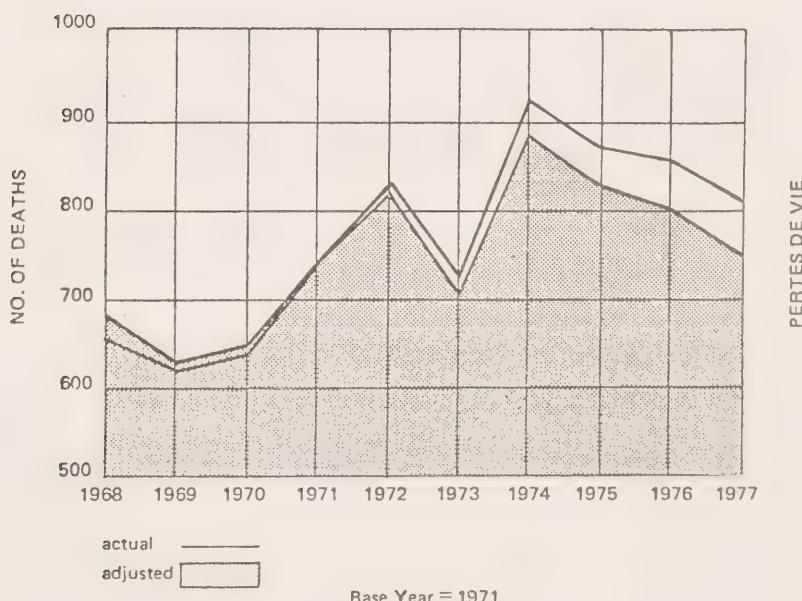
- 9.7 Deaths caused by fire have declined by 8% for females and only 3% for males between 1966 and 1977, but still exhibit a distinct male predominance. Younger age groups (under 14) are benefitting most from the decline, while males and females in the 15-34 age group rates are increasing.

9.8

PROPERTY LOSS — PERTES MATERIELLES



FIRE DEATHS — PERTES DE VIE



PERTES DE VIE

SOURCE: Report of the Dominion Fire Commissioner, 1977.

- 9.8 While material losses continue to increase, the number of fire victims has declined between 1974 and 1977.

9.9

FIRE DEATHS BY OCCUPANCY 1968 - 1977

PERTES DE VIE PAR OCCUPATION 1968 - 1977

Occupancy - Occupation	Men - Hommes	Women - Femmes	Children - Enfants	Total
Outside Area - Lieux à l'extérieur:				
Forest and Bush Fires - Feux de forêt et de brousse. . . . .	39	4	21	64
Out of Door Fires - Feux en plein air . . . . .				
Buildings - Bâtiments:				
Dwellings - Habitations:				
Rural - Rurales . . . . .	578	246	605	1 429
Urban - Urbaines . . . . .	684	465	562	1 711
Trailers - Roulettes . . . . .	99	33	49	181
Apartments, hotels, lodgings, tenements, etc. -				
Appartements, hôtels, chambres, logements ouvriers, etc. . . . .	452	249	79	780
Hospitals and Institutions - Hôpitaux et institutions . . . . .	141	75	8	224
Schools and Colleges - Écoles et collèges . . . . .	5	3	2	10
Public Assembly - Lieux de rassemblements publics . . . . .	29	21	3	53
Mercantile Occupancies - Locaux commerciaux . . . . .	35	11	4	50
Manufacturing Occupancies - Locaux industriels . . . . .	4	0	0	4
Oil Refineries and Bulk Distributing Plants -				
Raffineries et installations de distribution en vrac d'huile . . .	17	2	0	19
Oil and Gas Wells - Puits d'huile et de gaz . . . . .	9	0	0	9
Mining Property - Propriété minière . . . . .	3	0	0	3
Not classified - Non classifié . . . . .	20	2	2	24
Miscellaneous Other - Bâtiments divers				
Barns and Stables - Granges et étables . . . . .	9	2	6	17
Buildings under Construction - Bâtiments en construction . .	3	0	1	4
Garages and Filling Stations - Garages et postes d'essence . .	26	0	1	27
Grain Elevators - Silos . . . . .	1	0	0	1
Not classified - Non classifié . . . . .	20	1	0	21
Transportation - Transport:				
Aircraft - Avions . . . . .	16	2	0	18
Motor Vehicles (except Tank Trucks) -				
Véhicules automobiles (camions-citernes non compris) . . . . .	112	20	22	154
Tank Trucks - Camions-citernes . . . . .	21	0	2	23
Railroad Rolling Stock - Matériel roulant de chemins de fer . .	3	0	0	3
Boats and Ships - Bateaux et vaisseaux . . . . .	52	16	6	74
No Data - Aucun renseignement . . . . .	1 281	734	695	2 710
<b>TOTAL . . . . .</b>	<b>3 659</b>	<b>1 886</b>	<b>2 068</b>	<b>7 613</b>

SOURCE: Report of the Dominion Fire Commissioner, 1977.

- 9.9 Among 4903 fire deaths for which the place of occurrence was recorded (between 1968 and 1977) 67% (3321) occurred in private dwellings and 20% (1014) in other residences.

10. SUICIDE - HOMICIDE

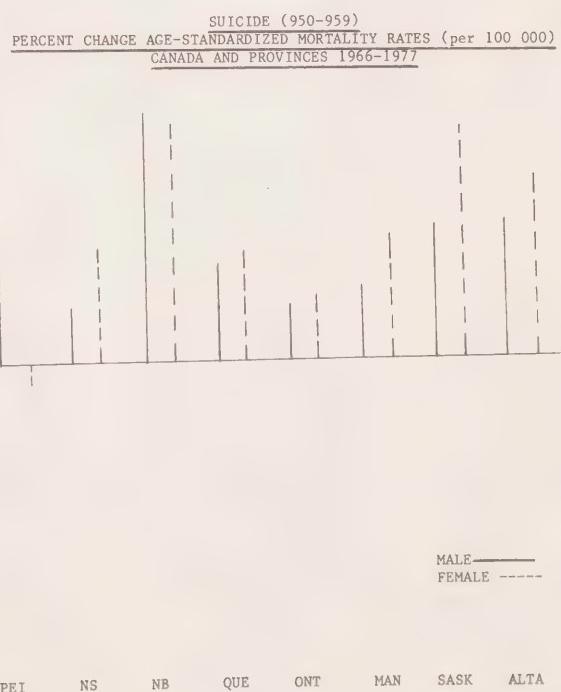


10.1

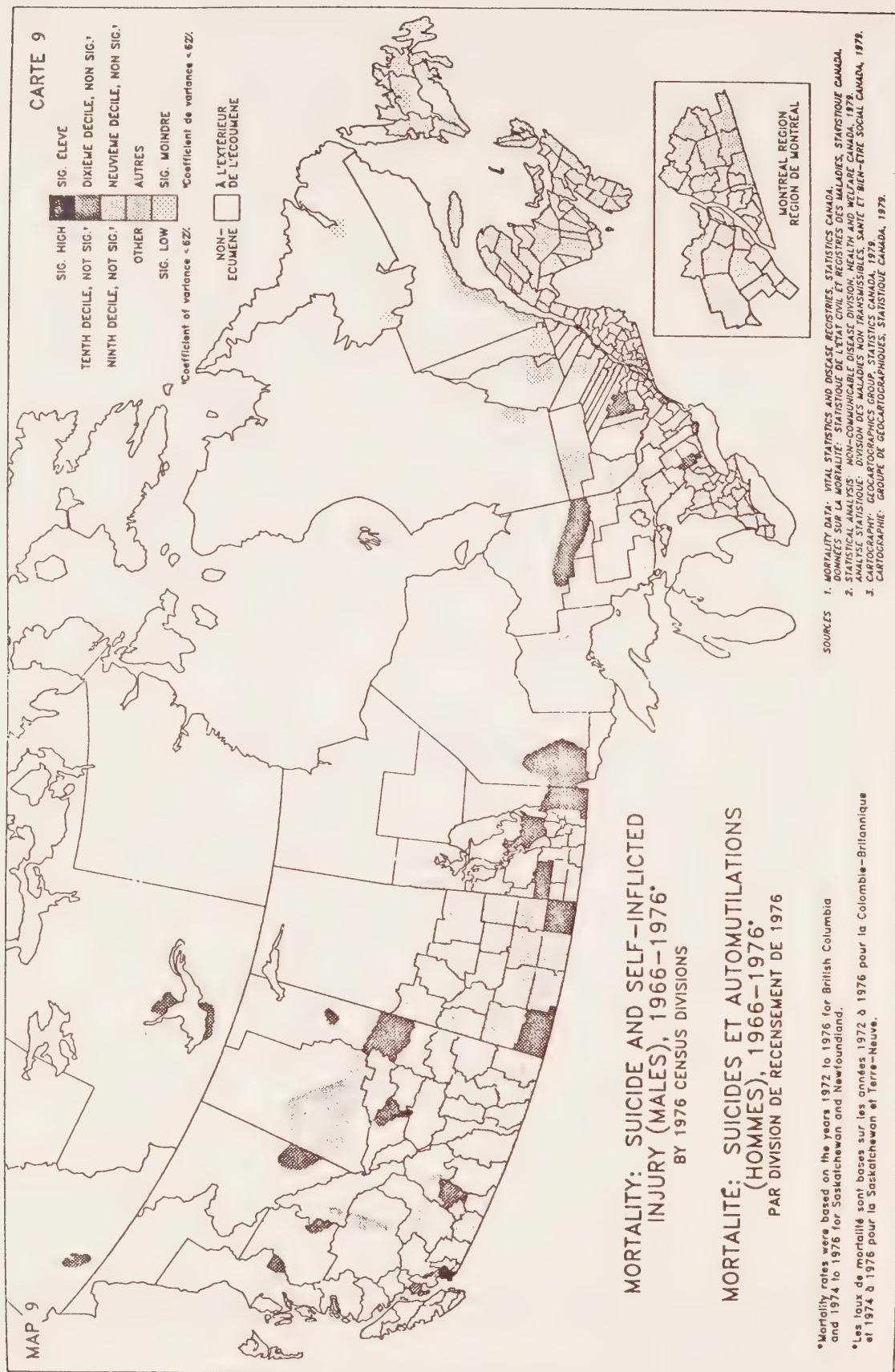
SUICIDE 950-959 - CANADA AND PROVINCES - 1966-1977  
Age Standardized Mortality Rates (All Ages) and Percent Change

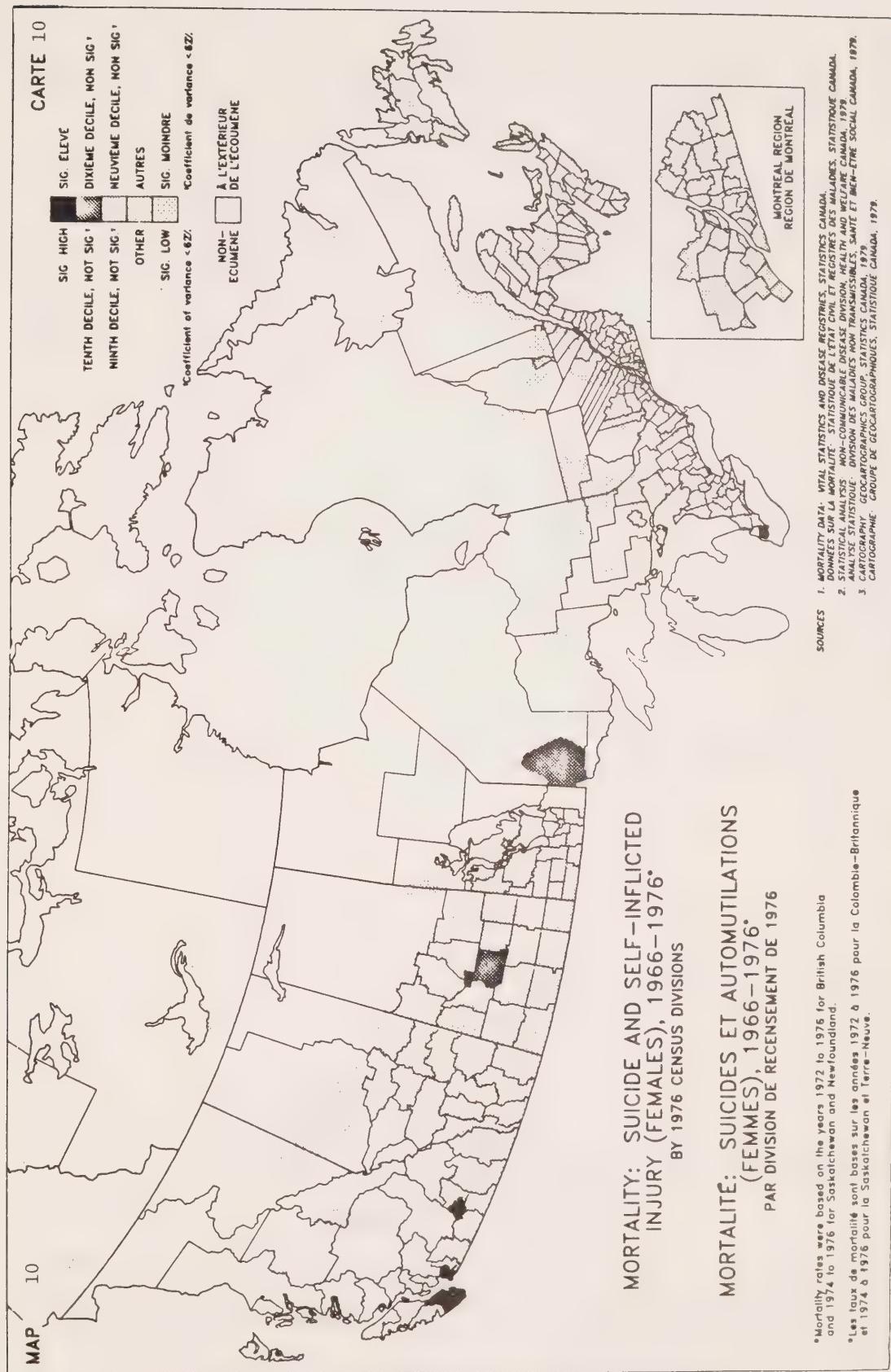
Males		Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Year	1966	13.4	7.3	13.9	17.2	6.9	10.3	13.8	16.7	14.5	16.3	17.3
	1967	13.8	3.8	10.1	13.8	8.7	10.6	15.3	16.9	12.4	15.4	17.8
	1968	14.7	2.9	14.2	11.0	7.4	11.5	16.2	17.5	15.3	16.2	21.2
	1969	16.0	2.3	17.8	17.9	13.2	13.4	16.4	16.4	15.5	19.5	21.3
	1970	16.5	10.2	22.9	16.3	9.1	13.7	16.2	19.7	18.5	21.2	21.7
	1971	17.4	6.6	21.4	16.1	11.8	13.9	19.5	19.9	13.7	18.2	21.9
	1972	17.3	4.9	10.0	18.4	12.6	14.8	17.5	19.0	24.6	20.2	20.3
	1973	17.8	8.9	19.8	17.9	15.2	16.1	16.8	18.3	20.0	18.9	24.6
	1974	18.3	4.5	21.6	17.9	16.2	15.5	18.9	20.4	18.6	21.9	22.8
	1975	17.1	7.0	19.9	17.4	10.9	12.5	18.3	19.0	20.2	22.0	22.6
	1976	17.5	7.1	35.4	16.8	18.3	14.6	17.0	18.5	19.1	24.0	21.4
	1977	20.1	7.2	17.9	16.6	16.5	16.9	19.7	26.9	23.5	26.9	23.8
MEAN	1966-67	14.0	4.6	12.7	14.0	7.7	10.8	18.1	17.0	14.1	16.0	18.8
MEAN	1975-77	18.2	7.1	24.4	16.9	15.3	14.7	18.3	21.5	20.9	24.3	22.6
% CHANGE		+30.3	+52.6	+91.6	+20.3	+97.6	+35.7	+21.0	+26.1	+48.4	+52.2	+20.1
<b>Females</b>												
Year	1966	4.4	0.0	2.1	2.3	2.1	3.3	5.2	4.8	2.2	4.9	7.3
	1967	4.8	1.0	8.4	1.9	1.6	3.5	5.9	4.4	4.3	3.8	8.3
	1968	5.2	0.0	0.0	3.1	2.4	3.8	6.3	5.2	4.8	4.9	8.6
	1969	6.2	0.5	7.8	2.4	5.2	5.1	6.8	6.0	4.2	6.6	10.1
	1970	6.4	0.6	0.0	2.6	3.7	4.6	8.0	5.7	4.9	6.5	9.1
	1971	6.3	1.9	2.1	1.8	3.0	4.6	7.8	7.8	2.6	4.5	11.5
	1972	6.8	1.8	0.0	5.1	3.2	4.8	8.5	4.9	6.8	5.8	10.0
	1973	6.9	1.7	1.5	3.8	3.0	6.2	7.2	7.8	5.5	6.8	10.6
	1974	6.8	0.8	3.4	3.3	1.4	4.7	8.1	7.2	6.1	10.3	9.4
	1975	6.5	0.3	3.7	2.8	4.1	5.0	7.4	6.4	7.9	7.5	9.0
	1976	6.7	1.1	4.3	3.5	3.7	4.8	7.6	8.4	7.8	8.2	9.3
	1977	6.8	0.7	1.6	4.4	4.2	5.9	7.7	6.6	5.9	8.0	8.8
MEAN	1966-67	4.8	0.3	3.5	2.4	2.0	3.5	5.8	4.8	3.8	4.5	8.1
MEAN	1975-77	6.7	0.7	3.2	3.6	4.0	5.2	7.6	7.2	7.2	7.9	9.0
% CHANGE		+37.7	+117.1	-8.4	+45.5	+96.1	+47.9	+29.4	+48.9	+88.2	+73.8	+11.4

SOURCE: Statistics Canada



- 10.1 Suicide death rates are increasing for both males and females in all provinces with the single exception of Prince Edward Island where female rates are declining.





Maps 9 & 10 Deaths were concentrated in Atlantic and Prairie provinces, both both males and females. A somewhat different pattern is seen in each sex.

10.2

SUICIDE 950-959  
CANADA 1966-1977

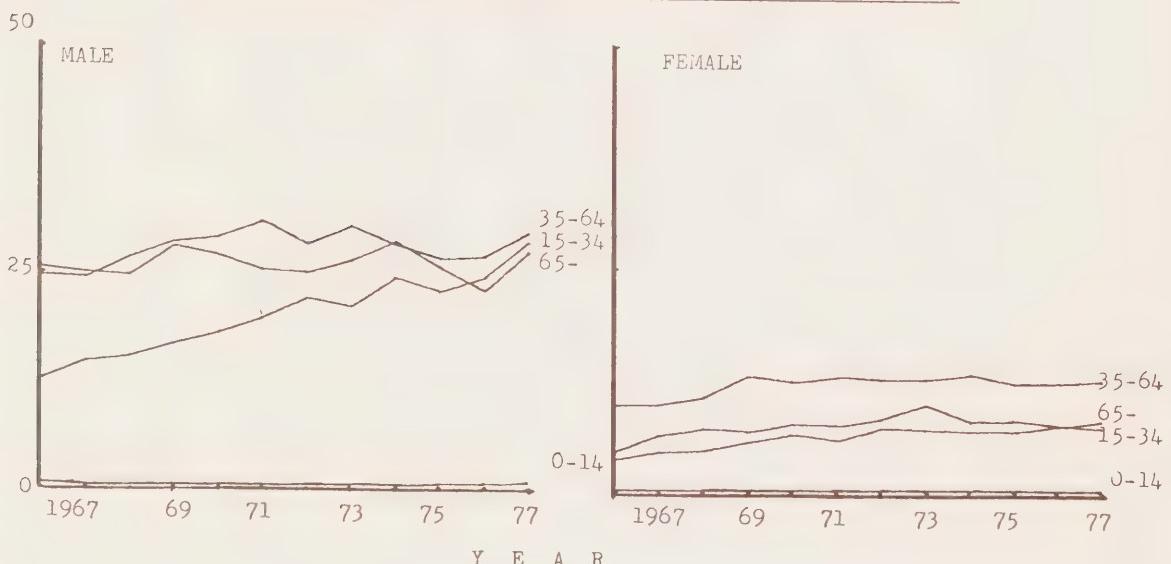
Age Standardized Mortality Rates and Percent Change

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	13.4	0.6	12.3	24.0	24.9	4.4	0.0	3.5	9.7	4.3
1967	13.8	0.3	14.3	23.7	24.3	4.8	0.0	4.3	9.7	6.2
1968	14.7	0.4	14.9	26.1	24.1	5.2	0.1	4.6	10.5	6.9
1969	16.0	0.3	16.3	27.9	27.4	6.2	0.1	5.5	12.8	6.6
1970	16.5	0.4	17.6	28.5	26.4	6.4	0.1	6.4	12.2	7.5
1971	17.4	0.4	19.2	30.2	24.7	6.3	0.1	5.7	12.8	7.4
1972	17.3	0.5	21.4	27.6	24.4	6.8	0.1	7.2	12.5	8.2
1973	17.8	0.6	20.4	29.6	25.8	6.9	0.1	7.0	12.6	9.7
1974	18.3	0.3	23.8	27.5	27.9	6.8	0.1	6.8	13.2	7.9
1975	17.1	0.6	22.2	25.9	24.9	6.5	0.1	6.8	12.1	8.0
1976	17.5	0.5	23.8	26.2	22.2	6.7	0.1	7.5	12.2	7.4
1977	20.1	0.8	27.9	28.9	26.7	6.8	0.2	7.2	12.5	8.0
MEAN 1966-68	14.0	0.4	13.8	24.6	24.4	4.8	0.0	4.2	10.0	5.8
MEAN 1975-77	18.2	0.6	24.6	27.0	24.6	6.7	0.2	7.2	12.2	7.8
% CHANGE	+30.3	+41.3	+77.9	+ 9.6	+ 0.7	+37.7	+185.7	+71.6	+22.6	+33.9

SOURCE: Statistics Canada

SUICIDE (950-959)  
CANADA 1966-1967

Age Standardized Mortality Rates (per 100 000) for Selected Age-Group



- 10.2 Suicide mortality rates are increasing especially in children and young adults of both sexes. While there is still a male predominance, female rates, particularly those of the 0-14 age groups, are increasing at a higher rate than those of males.

10.3

DEATHS ATTRIBUTED TO SUICIDE AND SELF-INFILCTED INJURY (E-950-959)  
BY AGE AND SEX - CANADA 1977

SEX \ AGE	0-1	1-4	5-14	15-29	30-49	50-69	70	NOT STATED	TOTAL
MALE	-	-	25	939	797	553	140	5	2459
FEMALE	-	-	8	226	299	275	48	2	858
M/F RATIO	-	-	3.1	4.1	2.6	2.0	2.9	-	2.8
TOTAL	-	-	33	1165	1096	828	188	7	3317
PERCENTAGE	-	-	1.0	35.2	33.1	25.0	5.7		100.0

SOURCE: Statistics Canada

Comment: Successful suicides occur more in males than in females (ratio 2.8 to 1) mostly in the 15 to 69 age groups. Evidence not shown here indicates that attempted suicide affects mainly females.

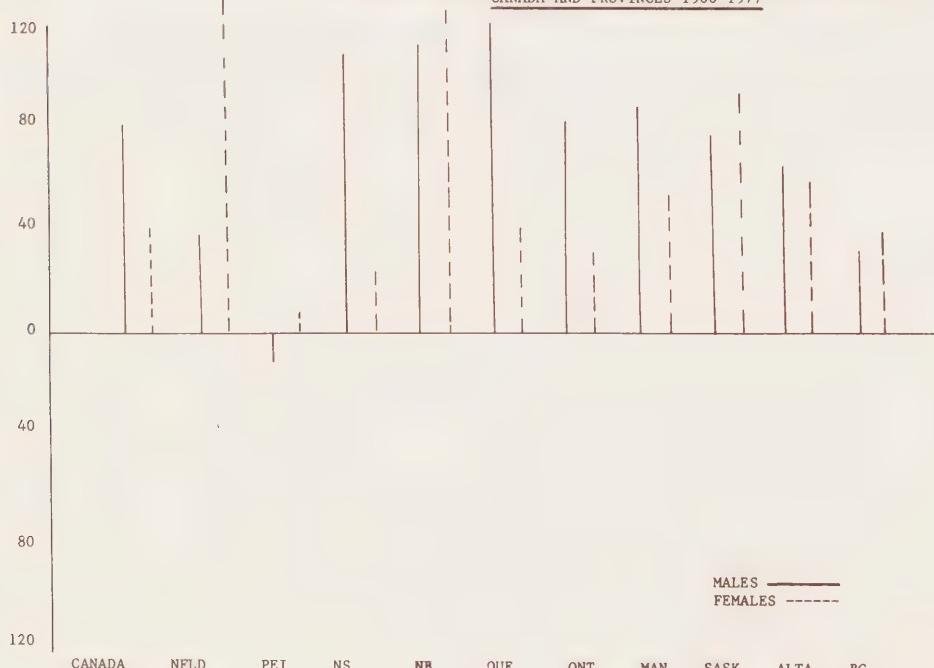
10.4

HOMICIDE 960-969 - CANADA AND PROVINCES - 1966-1977  
Age Standardized Mortality Rates (All Ages) and Percent Change

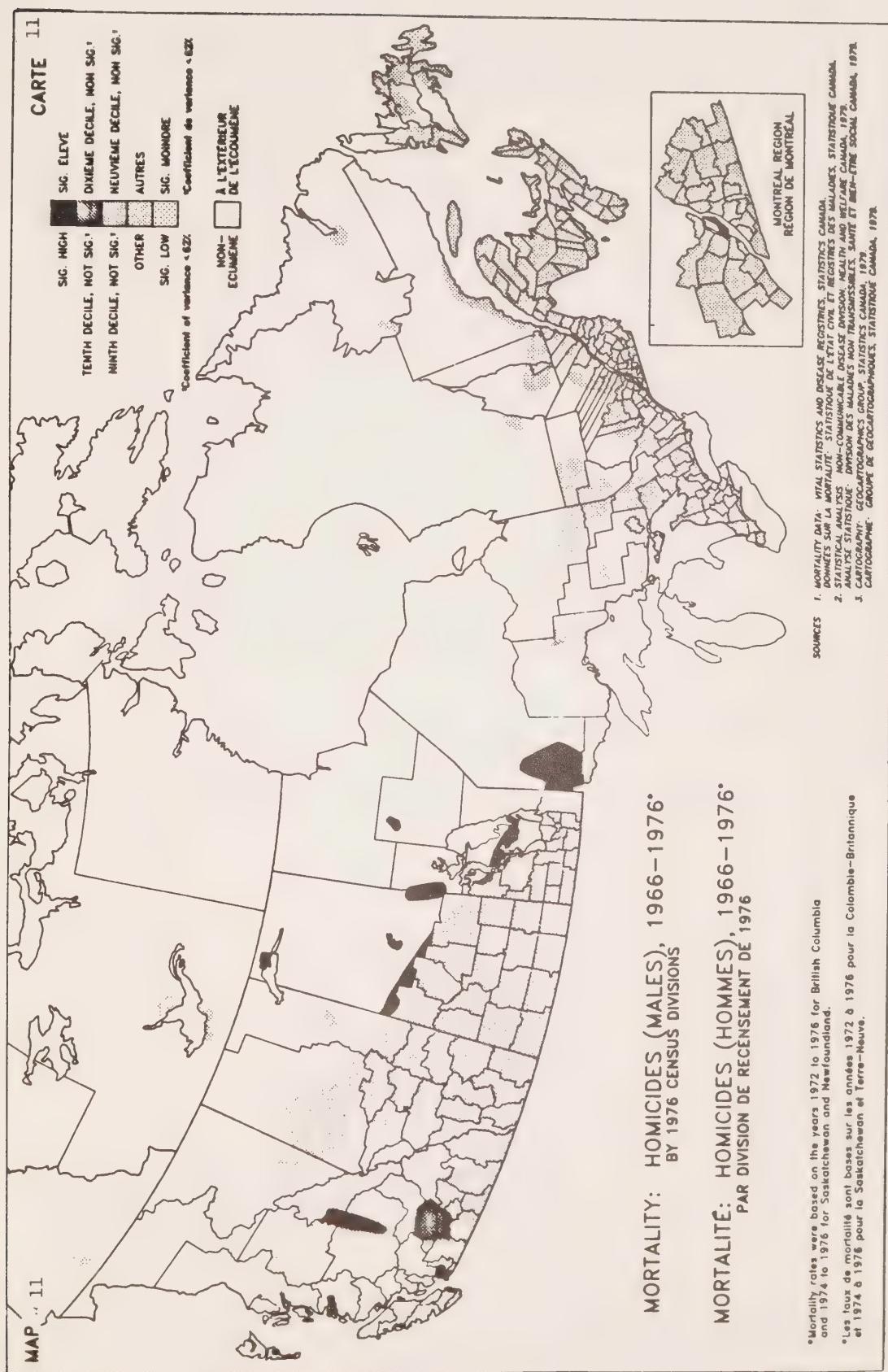
Males	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	
Year	1966	1.5	0.9	4.3	1.3	1.9	1.3	1.0	1.8	1.9	2.3	3.2
	1967	1.8	0.0	0.0	1.3	1.7	1.3	1.9	0.7	2.6	3.1	2.8
	1968	1.9	0.9	0.0	0.9	1.1	2.1	1.4	3.0	2.8	1.5	3.8
	1969	2.4	0.7	1.6	1.3	0.7	3.1	1.9	2.8	4.1	1.6	3.2
	1970	2.4	0.0	0.0	2.2	0.8	2.5	1.6	4.3	3.3	2.2	5.2
	1971	2.7	0.6	0.0	2.6	1.2	2.7	2.4	3.8	4.9	3.4	3.5
	1972	2.9	0.3	5.8	1.5	0.6	3.5	1.9	4.3	3.9	2.8	5.1
	1973	3.0	0.4	0.0	3.2	2.5	3.3	2.4	3.8	3.9	2.1	5.2
	1974	2.9	0.7	1.9	0.9	2.1	3.3	2.1	5.7	2.9	2.5	5.1
	1975	3.3	1.1	0.0	2.5	3.1	3.8	2.7	3.0	4.3	3.1	4.3
	1976	3.1	0.7	2.1	2.7	2.8	3.4	2.5	2.4	3.8	4.2	3.8
	1977	3.2	0.7	1.6	2.3	4.0	3.1	2.7	4.9	4.7	4.0	4.5
MEAN	1966-67	1.7	0.6	1.4	1.2	1.6	1.5	1.4	1.8	2.4	2.3	3.3
MEAN	1975-77	3.2	0.8	1.2	2.5	3.3	3.4	2.6	3.4	4.2	3.8	4.2
% CHANGE		+81.5	+38.0	-10.4	+107.4	+111.2	+118.2	+80.9	+83.6	+73.5	+61.4	+29.0
Females												
Year	1966	0.9	0.0	0.0	1.3	0.0	0.7	0.8	1.1	1.6	1.2	1.6
	1967	1.2	0.0	1.7	0.8	0.0	1.0	1.2	1.3	1.2	1.8	1.8
	1968	1.2	0.4	0.0	0.7	0.3	1.0	1.2	1.6	1.2	1.3	2.6
	1969	1.1	1.1	0.0	1.8	0.0	1.1	0.9	1.0	3.0	1.0	1.2
	1970	1.5	0.0	0.0	1.6	1.2	1.0	1.5	1.4	2.0	2.1	2.1
	1971	1.4	0.4	0.0	1.5	0.3	1.2	1.3	2.4	1.5	2.3	2.2
	1972	1.6	0.5	0.0	0.8	2.0	1.5	1.5	2.1	1.9	1.7	2.8
	1973	1.6	1.2	0.0	1.4	1.3	1.4	1.7	2.0	1.6	1.6	2.3
	1974	1.7	1.3	3.4	0.7	2.1	1.3	1.5	2.4	2.4	2.1	2.8
	1975	1.7	0.4	0.0	0.6	0.5	1.1	1.7	1.8	2.4	2.5	3.2
	1976	1.6	1.0	1.7	2.1	1.8	1.1	1.1	1.9	2.6	2.4	2.8
	1977	1.6	0.0	0.0	0.8	0.5	1.5	1.4	2.4	3.0	1.8	2.2
MEAN	1966-67	1.1	0.1	0.5	1.0	0.1	0.9	1.1	1.3	1.3	1.4	2.0
MEAN	1975-77	1.6	0.4	0.5	1.2	0.9	1.3	1.4	2.1	2.6	2.2	2.7
% CHANGE		+43.1	+235.7	+3.5	+24.0	+790.9	39.7	+28.3	+52.1	+92.8	+56.5	+35.4

SOURCE: Statistics Canada

HOMICIDE (960-969)  
PERCENT CHANGE AGE-STANDARDIZED MORTALITY RATES (per 100 000)  
CANADA AND PROVINCES 1966-1977



10.4 Homicide mortality rates are also increasing in all provinces, with the exception of male rates for Prince Edward Island. Some of the changes (e.g., females in New Brunswick) should be interpreted with caution because of the small figures involved.



Map 11 Homicide was also concentrated in the Atlantic and Prairie provinces. Rates in the Atlantic provinces are higher, but not statistically significant.

10.5

HOMICIDE 960-969  
CANADA 1966-1977

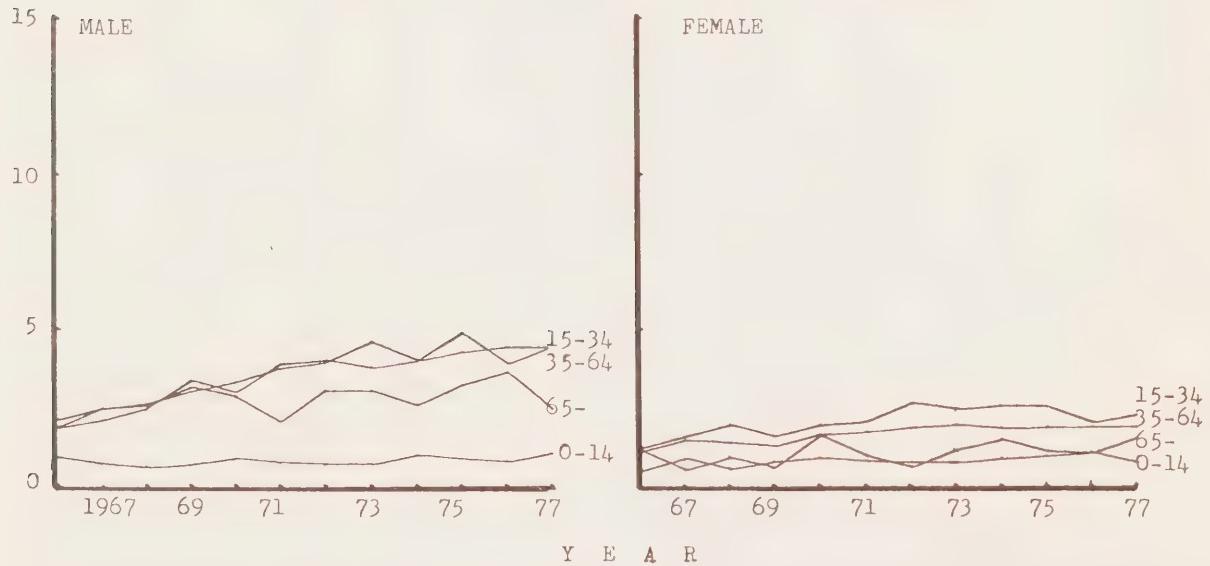
Age Standardized Mortality Rates and Percent Change

YEAR	MALE					FEMALE				
	ALL AGES	0-14	15-34	35-64	65+	ALL AGES	0-14	15-34	35-64	65+
1966	1.5	0.9	1.8	1.8	2.0	0.9	0.4	1.2	1.0	1.1
1967	1.8	0.6	2.1	2.4	2.4	1.2	0.8	1.5	1.4	0.4
1968	1.9	0.5	2.5	2.6	2.5	1.2	0.5	1.9	1.3	0.9
1969	2.4	0.6	3.4	3.0	3.1	1.1	0.7	1.5	1.2	0.5
1970	2.4	0.9	3.0	3.3	2.8	1.5	0.8	1.9	1.6	1.6
1971	2.7	0.7	3.9	3.7	2.0	1.4	0.7	2.0	1.7	0.9
1972	2.9	0.6	4.0	3.9	3.0	1.6	0.7	2.6	1.8	0.5
1973	3.0	0.7	3.7	4.6	3.0	1.6	0.7	2.4	1.9	1.1
1974	2.9	1.0	4.0	3.9	2.5	1.7	0.8	2.5	1.8	1.4
1975	3.3	0.8	4.8	4.2	3.2	1.7	0.9	2.5	1.8	1.0
1976	3.1	0.7	3.8	4.4	3.6	1.6	1.0	2.0	1.8	1.0
1977	3.2	1.0	4.4	4.4	2.4	1.6	0.7	2.2	1.8	1.5
MEAN 1966-68	1.7	0.7	2.1	2.3	2.3	1.1	0.6	1.5	1.3	0.8
MEAN 1975-77	3.2	0.9	4.4	4.3	3.1	1.6	0.9	2.2	1.8	1.2
% CHANGE	+81.5	+25.0	+105.1	+89.6	+30.2	+43.1	+46.0	+43.6	+43.8	+45.2

SOURCE: Statistics Canada

HOMICIDE (960-969)  
CANADA 1966-1967

Age Standardized Mortality Rates (per 100 000) for Selected Age-Group



10.5 Homicide mortality rates are also increasing for all age groups, but particularly for males aged 15-34 and 35-64 years.

10.6      DEATHS ATTRIBUTED TO HOMICIDE (E-960-969) BY AGE AND SEX  
CANADA 1977

SEX \ AGE	0-1	1-4	5-14	15-29	20-49	50-69	70	NOT STATED	TOTAL
MALE	5	11	16	146	137	69	13	2	339
FEMALE	4	11	6	75	61	28	13	-	196
M/F RATIO	1.2	1.0	2.6	1.9	2.2	2.4	1	-	2.0
TOTAL	9	22	22	221	198	97	26	2	597
PERCENTAGE	1.6	3.7	3.7	37.1	33.2	16.3	4.4	-	100.0

SOURCE: Statistics Canada  
Catalogue 84-203, 1977

- 10.6 In 1977, 70.3% of those deaths attributed to homicide affected the 15 to 49-year-age groups. There was a frank male predominance which was more marked in the 5-69 age groups.



## 11. FUTURE PROSPECTS AND PRINCIPLES OF CONTROL



## 11. FUTURE PROSPECTS AND PRINCIPLES OF CONTROL

The prevention and control of accidents, poisoning and violence cannot be rationally accomplished without application of the epidemiological method. This requires the successive completion of at least three stages.

1. Surveillance and collection of information followed by descriptive analysis in order to identify not only the most important items, but also the population groups at risk and the factors associated with causation. This data will provide the initial clues for further investigation.
2. Development and testing of hypotheses regarding causation and subsequently identification of practical control measures.
3. Evaluation of the practical application of those control measures in terms of their effectiveness.

The satisfactory completion of the first stage, essential for the search and development of research hypotheses, is difficult because of the inadequacies of the existing data. Improvement in the quality of the pertinent information is regarded as a critical area which requires further attention.

Research aimed at elucidating causation and at identifying preventive measures has been for long the responsibility of different agencies and various levels of government. At present it is constrained by limited availability of funding and the lack of clear-cut priority formulations.

The practical application of available control measures and the evaluation of their intermediate and long-term effectiveness cannot be approached in a fragmentary manner. A renewed emphasis on surveillance and evaluation in this area is, therefore, perceived as a necessity, particularly when dramatic changes in some of the trends suggest that the utilization of control measures in some areas might be optimized.

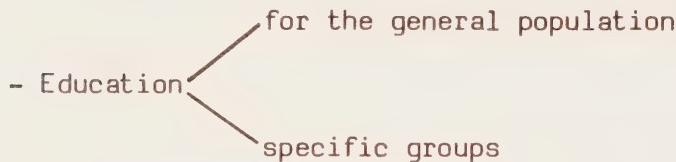
Any attempt to further develop a surveillance and evaluation strategy should take into consideration basic principles of prevention. In general terms, the occurrence of accidents, poisoning and violence may be regarded as the consequence of interrelationships among the host (person affected), the agent (causing the injury) and the environment (in which the episode takes place).

While in the genesis of the various types of AP&Vs these three elements may adopt an almost infinite number of associations, combinations and interrelationships, it is practical to keep this "conceptual triad" in mind when dealing with basic principles of prevention.

Schematically it is therefore reasonable to suggest that prevention could be aimed at:

1. Reducing the susceptibility of the host. This entails in most instances modification of human behavior, recognized so far as the most important factor in the genesis of accidents. There are, however, other factors which, temporarily or in the long run, may affect the ability of the host, such as disease, fatigue, inexperience, etc.

Most of the attempts made in the past to reduce host susceptibility have been centred around:



- Detection of situations affecting the ability of host
    - | disease, disability
    - | inexperience
    - | fatigue
    - | alcohol or drug intoxication
    - | etc.
  - Regulatory enforcement of sanctions when applicable.
2. Reducing the hazards due to the agent. This approach involves modification of the host-agent relationship either by detecting and changing some dangerous characteristic of the agent itself e.g., protecting power saw, or improving the design of equipment or facilities e.g., design of highways, electrical appliances, etc. Both rely on the progress of human engineering or biotechnology.
  3. Reducing the risk of environment. This includes not only the physical and chemical environment (illumination, pollution, etc.), but also psycho-social factors influencing the behavior of the host (interpersonal relationships, emotional problems).

While some of the measures mentioned above are mostly aimed at preventing the occurrence or minimizing the consequences of A.P.&V. there are measures which could contribute to reduce the consequences of injury and facilitate the maximal rehabilitation of the host. They are mostly concerned with the provision of adequate medical care (emergency and rehabilitation) and with the adequate transportation (ambulance) and management of these problems at the site of occurrence (first aid, CPR, etc.).

Evaluation of the effectiveness of available control measures at all of these levels for the most important accidents, poisoning and violence is also regarded as an urgent task.

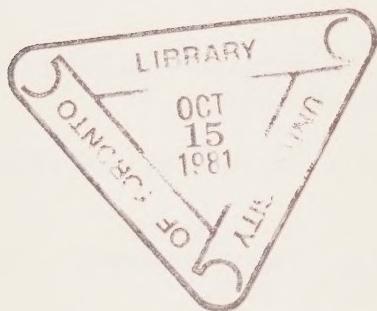
## 12. REFERENCES



REFERENCES

1. Accident Mortality in Childhood in Selected Countries of Different Continents 1950-71, World Health Statistics Report, Vol. 30: No. 1, 1977 (WHO).
2. Accident Research Methods and Approaches. Haddon, Suchman and Klein. Harper and Row Publishers, New York, 1964.
3. Accident Fatalities. Canada 1977, Canada Safety Council.
4. Analysis of fatal traffic crashes in Canada, 1976 Traffic Injury Research Foundation of Canada, 1978.
5. Annual Global data on Mortality 1970-72. Motor vehicle accidents, suicide and self-inflicted injuries. World Health Statistics, Vol. 27, 1974.
6. Canadian Task Force on the Periodic Health Examination. Working Documents, Health and Welfare Canada, 1979.
7. Causes of Death - Statistics Canada, Catalogue 84-203.
8. Causes, Sites, Management and Outcomes of Injuries in the Ottawa Region. Traffic Injury Research Foundation of Canada, 1977.
9. Crime and Traffic Enforcement Statistics - Statistics Canada, Catalogue 85-205, 1977.
10. Fire Losses in Canada - Reports of the Dominion Fire Commissioner. Department of Public Works Canada.
11. Health Field Indicators - Canada and Provinces, Health and Welfare Canada, 1979.
12. Home Accident Prevention, Committee Report, Health Programs Division, Ontario Ministry of Health, 1979.
13. Hospital Morbidity - Statistics Canada, Catalogue 82-206 Annual.
14. International variations in mortality from motor vehicle accidents. Metropolitan Life Insurance, Statistics Bulletin, Vol. 62, No. 2, 1979.
15. Mortality from Motor Vehicle Accidents in the 15-24 year age groups. World Health Statistics Report, Vol. 30, No. 1, 1979.
16. Mortality Atlas of Canada. Health and Welfare and Statistics Canada, Catalogue No. H49-6/1-1980.
17. Mortality by Income Levels in Urban Canada. Health and Welfare Canada, 1980.

18. Motor Vehicle Traffic Accidents - Statistics Canada, Catalogue 53-206, 1975 and 1976.\*
19. Priorities and Strategies - Motor Vehicle Accidents - Report prepared by Federal-Provincial Priorities Planning Committee, 1976.\*\*
20. Regional Variations in Mortality from Accidents. Metropolitan Life Insurance Statistical Bulletin, Vol. 60, No. 3, 1979.
21. Road Traffic Accidents Report, The Royal Ulster Constabulary 1978.
22. Road Motor Vehicles Registrations. Statistics Canada, Catalogue 53-219, 1976-77.
23. Road Motor Vehicles - Fuel Sales - Statistics Canada, Catalogue 53-218, 1978.
24. Work - Injuries and Costs, Occupational Safety and Health Branch, Department of Labour Canada, 1978.



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\* Information for 1976 provided by Transportation and Communication Division, Statistics Canada.

\*\* Available from Policy Planning and Information Branch, Health and Welfare Canada.



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